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THE RELATION BETWEEN THE SCIENCE AND THE ART OF INFANT FEEDING *

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During the past few years there has been much discussion in reference to scientific infant feeding. On closely examining the points discussed, however, it will be found that little attention has really been paid to the science of infant feeding, as almost all the efforts have rather been directed to the art of infant feeding. The science of infant feeding consists in knowing why certain things should be done, or not done, and the effects of different procedures. The art of infant feeding comprises the methods employed in preparing food and administering it. Most of the articles concerning infant feeding have related to methods of making foods acceptable to infants, and many diverse methods have been proposed. As infants have been found who have thriven, to a certain extent, on all of the different methods that have been advocated, it is evident that there has been something in common possessed by all of them.

The reason that every method of infant feeding can be shown to have been occasionally successful is that all of the foods contained more or less proteins, mineral matter, fats and carbohydrates, without which no infant can live or grow. Various infants will thrive on some foods better than on others, owing to the fact that the food elements are present in more suitable quantities and forms. The form of a food element has an important effect on its usefulness, and a large part of successful, practical feeding consists in changing or adapting the form of the food elements to suit different infants, for they are not alike in their capacity for digesting and assimilating even the same forms of food elements.

It is self-evident that the infant belongs to the animal kingdom and is accordingly subject to the general laws of animal nutrition.

It is also evident that the infant is still in the last stages of embryonic development while normally at the breast, and that its digestive organs are not adapted for ordinary food. All young mammals are in this condition for some time after birth and it is found that the food supplied by the mother has the property of changing its physical form when it comes in contact with the gastric secretions of the young. The food assumes a more or less solid form in the stomach, and the character of this solid differs as the stomachs of the young animals differ, rather than according to the composition of the food. The composition of the food supplied by the mothers of various species of young animals varies according to the rate of growth of the young, the milk supplied to rapidly growing young animals containing more protein than that furnished to those whose growth is less rapid.

In reference to the infant's nutrition, we have always to deal with milk in some form, as biology shows that this is always the primary and elemental food mixture, containing in easily assimilable form all the food principles. While the different manipulations required to make various milks, or other forms of food, acceptable to the infant's stomach constitute the art of infant feeding, before any of these details can be accepted as scientific and thus of permanent utility, it must be decided how far they are in accordance with biologic laws. Biology must thus finally decide both the possibilities and limitations of every method that is advanced. This will call for a knowledge of the structure and functions of the various digestive tracts in connection with the peculiar characteristics of the milk early furnished to each species. This study will show not only how far different milks are interchangeable, but also throw light on the various manipulations that aim to make them so.

A chemical analysis of milk will show the ingredients of this fluid, and, to a certain extent, their potential food values from their quantitative amount. There is something beyond this, however, that chemistry can not explain. While the fats and carbohydrates in their composition and reaction to the digestive secretions are a good deal alike in different milks, the proteins are essentially different. Chemistry alone can not explain this phenomenon. We must study the reaction of the protein to the digestive secretions, and then examine such reactions in relation to the growth and development of the digestive tract—in other words, investigate the question biologically before we can understand the problem. A certain portion of the protein of all milks coagulates on coming in contact with rennin or rennin and acid, but the manner and extent of this coagulation stands in a direct relation to the proper evolution of the digestive tract of the animal.

While there are many grades of coagulability in the milks of different animals, for practical purposes, we may distinguish three of these grades and consider their significance. The protein may coagulate in a solid, gelatinous or flocculent manner. In the ruminant, herbivorous animals, such as the cow, sheep or goat, the protein coagulates in solid, tough masses that can not readily leave the stomach. In these animals, digestion is always largely gastric and the stomach forms 70 per cent. of the digestive tract. Later, this stomach will be called on largely to digest tough, stringy masses of hay and straw and the previous exercise on the tough curds of the milk develops it for this future work. In the non-

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ruminant herbivora, such as the mare and ass, the protein coagulates in gelatinous masses that can easily leave the stomach. The reason for passing the curds quickly along is, that in this class of animals digestion is largely intestinal, and the intestines form about 90 per cent. of the digestive tract. Later, grain and grasses must be largely digested in the intestinal portion of the tube, and hence the curd is here also especially adapted to develop the intestinal tract for its future work. In human milk, the curd is thrown down in flocculent masses—a form intermediate between the solid and gelatinous types of curd previously noted. While digestion begins in the stomach it is largely carried on and completed in the intestine, and the stomach forms about 20 per cent. of the digestive tract. The curd is thus adapted to start the development and motility of the stomach and finishes by instituting these functions in the bowel which is destined to play a predominant part in digestion. Here again the curd, so far as the form is concerned, furnishes an analogue and precursor of the future food of the infant. The curd forms small, flocculent masses, and the future food must be separated later into small masses by chewing before digestion can take place to the best advantage.

We have thus seen that the milk of herbivorous animals whose digestion is principally gastric forms solid curds which can not easily leave the stomach; that the milk of herbivorous animals whose digestion is principally intestinal forms gelatinous curds which easily leave the stomach and pass into the intestines; and that women's milk, which is intended for a digestive system in which gastric digestion is more than that of the horse or ass, but not so great as the cow or goat, curds in flakes that stand between the other two types of curds.

Biologic science thus shows us that, while a certain amount of protein is present in the milk of all animals, and is necessary for tissue building and growth, this protein must not only be coagulable, but must curd in a certain specific way in each species of animal. The protein is thus the least readily interchangeable of the ingredients of the milks of different species. In this way, science teaches that the protein must not be thrown into a soluble form or so altered as not to react normally to the digestive secretions if we would have healthy growth. We must always remember that the protein has a developmental as well as nutritive function to perform. While immediate nutrition is of great importance to the growing infant, we must not, by putting all food in a soluble form for quick absorption, neglect to give proper work for the secretions and musculature of the digestive tract. It is only by the latter method that the natural food for the adult can later be digested by a normally developed tract. The science of infant feeding will thus influence the art by showing what should and what should not be done in the various manipulations that may be advised. Briefly, all the food principles must be present and in about the same proportion as in the natural food of the infant. Chemistry will tell us this from an average of many examinations, but can not say the final word. It can tell us that protein exists in certain amount, but the form and adaptation of the protein for the infant's digestive tract can only be determined by biologic methods.

A few simple illustrations may show the practical application of these biologic standards. From chemical analyses we know approximately the quantity of protein an infant needs to produce growth. If chemistry alone is the standard, any form of protein should be satisfactory. It would be possible to give sufficient protein in the form of whey, but this protein (lactalbumin) is in solution and remains fluid in the digestive tract. The same would be true of complete peptonization. However desirable for temporary use, for routine employment these forms of milk are contraindicated by the biologic principle that in all young animals a portion of the protein of the milk is thrown by the young stomach into a more or less solid form, which evidently has for its purpose the development of the motility of the digestive tract.

As another example, if there is a persistent appearance of curds in the stools, it may indicate an intestine too weak in digestive power to take care of the normal curd. Here the use of a substance like citrate of sodium may be scientifically indicated from its action in altering the character of the curd to make it suit the weakened condition of the bowel. As a routine measure for normal infants, however, this should be looked on as an unscientific procedure.

Again, it is well understood that gastric digestion in the adult depends essentially on the action of pepsin and hydrochloric acid on proteins, and in infancy there is little acid secreted. As the stomach develops, more pepsin and acid are secreted. Is it not, then, contrary to biochemical science to check the beginning action of the gastric secretion by loading the food with bicarbonate of sodium, or other strong ant-acids, as a routine measure? Biology teaches that organs improve in capacity by a normal increasing use. What chance has the stomach to develop its function if the food constantly contains ingredients that will more than neutralize the acid it secretes and thus check one of its functions? On the contrary, if there is an acid intoxication, or an abnormally acid secretion, then it will, indeed, be scientific to correct such abnormal conditions by giving ant-acids. These illustrations show that when the science of infant feeding is understood the methods to be used under different conditions will be self-evident, which could never be the case so long as chemical data alone are assumed to be the exclusive basis of scientific infant feeding.

The scientific principles involved in infant feeding are few and simple. The methods of applying them are many and may be as simple or as complex as one desires to make them. The point ever to be kept in mind is: What is the effect of a proposed method and does it apply correct scientific principles? Many of the methods that have been proposed are unscientific when employed as routine measures, although they may be scientific under certain conditions; and methods that may be scientific as routine measures may be unscientific when applied to abnormal conditions.

Various methods of preparing food have been well worked out and simplified, but they will be of little value to the physician unless he knows why, and how, and when to use them. In this way only can scientific methods prevail. Infant feeding can only become scientific by being placed in line with the methods of science in general.

Early Use of Chloroform in Eclampsia.—J. R. Fothergill, in the *Journal of Obstetrics and Gynecology of the British Empire*, reports a case of eclampsia, occurring in 1849, in which his father, John Fothergill, M.R.C.S., used chloroform to control the convulsions during delivery. He states that this is probably one of the earliest recorded cases in which chloroform was used for this purpose.

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INVESTIGATION OF BLOOD FOR TUBERCLE BACILLI

CONTAMINATION OF DISTILLED WATER WITH ACID-FAST ORGANISMS A SOURCE OF ERROR

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In view of the recent publications by Rosenberger[1] of the remarkable results of his investigations of the blood for tubercle bacilli, it seems worth while to publish my experiences in a similar investigation conducted in November, 1908, without knowledge of this author's work. The report is intended to repeat a warning by calling attention again to the dangers of contamination with other acid-fast organisms.

In his text-book, "Clinical Pathology of the Blood," Ewing reviews briefly the work done previous to 1891, in which various investigators found tubercle bacilli in the blood. He then says: "Grave doubt was, however, thrown on all previous work in this field by the negative results obtained by Guttman and by Kossel, who called attention to the danger of contamination in such specimens. This method of diagnosis has not been followed up in later years, although Kronig, in 1894, recommended the staining of centrifugalized laked blood in doubtful cases of miliary tuberculosis." Ewing further cites Kuhnau, who obtained only one positive result from twelve inoculations with the blood from severe febrile cases of tuberculosis.

TECHNIC

It should be recalled at once that ordinary methods of heat sterilization have no effect on the staining properties of tubercle bacilli and of the other members of the acid-resisting group of bacilli. Exposure for a few seconds to pure nitric acid, however, and also to the direct flame destroys their staining properties. In this work, therefore, the slides and cover-glasses used were exposed to the flame, and other glassware was treated with pure nitric acid and rinsed with alcohol and ether. A few drops to 10 c.c. of blood were drawn either from a vein or from the finger-tip, the skin being cleaned with soap and water, alcohol and ether. For laking the blood I used very dilute acetic acid or 0.2 per cent. ammonium oxalate in distilled water, which was furnished daily by the Canal Commission for drinking purposes. This laked blood was then centrifugalized and smears made from the sediment, a very pretty field of thickly spread leucocytes being obtained. Each cover-glass smear was traversed ten times with the 1/12 lens, as an arbitrary standard of search. Nitric acid, 25 per cent., followed by 95 per cent. alcohol, decolorized the preparations, and a counter-stain of methylene blue was used. The distilled water and all solutions used were repeatedly centrifugalized, and smears made from the sediment were examined for acid-alcohol-resisting bacilli. At first results were constantly negative. An earnest attempt was made to exclude every possibility of contamination.

BLOOD EXAMINATIONS AND ANIMAL INOCULATIONS

On Nov. 1, 1908, a patient was admitted with high fever, meningeal signs, convulsions, and a moderate leucocytosis. Blood culture (10 c.c. in Conradi's medium) gave no growth after twenty-four- and forty-eight-hour transplants on agar. Lumbar puncture, November 2, showed an increased quantity of cerebrospinal fluid under a pressure of 212 mm. The fluid was very faintly turbid, contained a considerable quantity of proteid, and a slight increase of leucocytes, the large mononuclears predominating. Cultures from the spinal fluid were negative. A portion of the fluid was diluted with distilled water, centrifugalized and examined. Acid-alcohol-resisting bacilli were found. The patient died November 3, and the autopsy showed edema of the cerebral meninges; bronchopneumonia; a small tuberculous cavity, 1 cm. in diameter, in the apex of the right lower lobe; a calcified and pigmented tubercle, 1.5 by 1 cm. in size, in the pleura of the right lower lobe; one calcified peribronchial lymph-node on the right side. Cultures on agar-slant from the spleen were negative.

Having found tubercle-like bacilli in the spinal fluid, the idea suggested itself that this case might be one of "typhobacillose" described by Landouzy.[2] I took, therefore, a portion of the bile, in which had been placed 10 c.c. of blood, diluted with distilled water, and centrifugalized. In the smear 58 acid-alcohol-resisting bacilli were found. A diagnosis of acute tuberculous septicemia was made. Fifteen days later, after most of the work had been done, it occurred to me that it would be interesting to make another transplant from the bile-blood culture, which had been fortunately saved. To my surprise, a fairly good growth on agar of a small diplococcus was obtained. On blood agar, after several transplants, this diplococcus developed a well-defined, distinctly staining capsule, and proved to be a pneumococcus. Pneumococcus septicemia, without pulmonary consolidation, is not an infrequent occurrence in Panama, and in several cases I have been able to isolate the organism from the blood before a meningitis developed and when there were no signs other than high fever, leucocytosis, arthritis or epididymitis. Eventually, therefore, the diagnosis in this case was corrected to pneumococcus septicemia.

The first findings, however, led me to investigate the blood of other patients, and in cases of pulmonary tuberculosis the results were uniformly positive. Altogether twenty-six positive examinations were made, including cases of pulmonary tuberculosis, cervical and inguinal adenitis, pleurisy with effusion, miliary tuberculosis, intestinal hemorrhage of obscure origin, abdominal pain and diarrhea, dysentery of obscure origin, arthritis of hip-joint, and other obscure fevers. In none of these cases could a diagnosis of tuberculosis be excluded clinically. There were negative results in one case of pneumonia, one of cervical adenitis which later subsided with antisyphilitic treatment, one case of pregnancy, and one of obscure continued fever. During this time there was only one autopsy on a non-tuberculous body. Examination of a mixture of cerebrospinal fluid and blood from this case showed two atypical and indefinitely staining, but suspicious bodies.

These remarkable results were rendered more credible by certain coincidences which seemed to be at the time convincing evidence of their validity. Two patients were admitted early in the course of an acute continued fever, the temperature ranging from 102 to 103. Blood was taken at the same time for cultures in ox-bile and for examination for tubercle bacilli. The examination for tubercle bacilli was made at once with positive findings in each case. Although both resembled typhoid

1. Am. Jour. Med. Sc., February, 1909; New York Med. Jour., June 19, 1909

2. Internat. Cong. on Tuberculosis, Washington, 1908, Section ii, No. 2.

fever, I predicted that the cultures would be negative for the typhoid-colon group. They proved to be so.

A typhoid fever patient, who had given a positive blood-culture, developed meningeal signs. On lumbar puncture 30 c.c. of clear fluid under a pressure of 200 to 225 mm. was obtained. It contained a small quantity of proteid and two leucocytes per c.mm. A culture made in ox-bile was negative for typhoid bacilli. Before this fluid was examined for tubercle bacilli the patient died and the autopsy showed typhoid lesions, but no tuberculous lesions of the cerebral meninges. Immediately afterward I examined the spinal fluid by precipitating the proteid with alcohol, dissolving in sodium carbonate 0.6 per cent. in distilled water, centrifugalizing and making smears from the sediment. Seventeen tubercle-like bacilli in one smear were found. Dr. Williamson, the pathologist, at my request, then removed the cord. Caseous areas were found scattered in the spinal meninges. Tubercle-like bacilli were found in the blood preparations, also, from this case.

In another instance, for a control, an apparently healthy patient, who had been admitted for malarial fever and who had had no fever for several days, was selected. In his blood acid-alcohol-resisting bacilli were found. I then made a more careful examination of the patient and discovered a pleural effusion reaching about 4 cm. above the normal border of the base of the left lung. The diagnosis of effusion was confirmed by thoracentesis.

Another patient had a high continued fever, the temperature remaining at 104 to 105 F. for two weeks. Two blood cultures in ox-bile were negative; leucopenia was marked with an almost complete absence of polymorphonuclear leucocytes which fell to 5 per cent. There was a profuse hemorrhage into the conjunctivæ with purpura of the lids; other purpuric areas developed on the trunk, and there appeared peculiar bullous skin lesions, very superficial on a hemorrhagic base. Extensive noma of the lower lip developed, a few scattered râles were present in both lungs, the spleen was enormous. Tubercle-like bacilli were found in the blood, stools, urine and scrapings from the base of one of the skin lesions. The stool was boiled in 0.6 per cent. sodium carbonate in distilled water and centrifugalized; the urine was diluted with distilled water, sedimented, and the lower portion centrifugalized; and subsequently I learned that the ward physician who examined the skin lesion had teased the scraping in distilled water. A lesion examined later without using water was negative. A diagnosis of miliary tuberculosis was made. Later, and after I had discovered the source of contamination, the patient's fever terminated by crisis and recovery was good. I was never able to arrive at a satisfactory diagnosis.

These acid-alcohol-resisting bacilli were likewise readily found in pleural effusions and in stools and urines examined by the method indicated above. The morphology of the bacilli was typical of tubercle bacilli. There were long beaded forms and shorter solidly-staining ones; they were frequently scattered, but usually in clumps of two, ten, thirty, and sometimes one hundred or more. The number of bacilli in one cover-glass preparation varied from two to several hundred.

During all this time, sources of error in technic or sources of contamination were diligently sought, for the ease with which positive results were obtained rendered it almost incredible that such a bacillemia had not been demonstrated before. The water, sodium carbonate, sodium hydrate, ammonium oxalate, acetic acid, and alcohol were repeatedly centrifugalized separately and smears from the sediment examined with negative result. The carbol-fuchsin solution and methylene blue were likewise examined and nothing found. More time was consumed in searching for error than in the examination of blood.

On November 11 the heart's blood of five guinea-pigs was drawn for examination. On November 12 four of these pigs were inoculated intraperitoneally with the sediment from three to nine drops of blood taken from two positive cases of pulmonary tuberculosis and two cases of suspected tuberculosis. The fifth pig had been inoculated subcutaneously on October 11 with sputum from a case of suspected pulmonary tuberculosis. Immediately after inoculation the bloods drawn the day before from the heart were examined and tubercle-like bacilli found in all five instances. One of the pigs inoculated from a suspected tuberculous case was killed at once, and the autopsy showed no tuberculous lesions. But again in blood taken from its heart at autopsy similar bacilli were found. The other four pigs all remained healthy for more than four months. On March 19, 1909, two more of them were killed and examined with negative results. One of these had been inoculated with blood from a patient with pulmonary tuberculosis, the other with sputum from the suspected case. The remaining two, being apparently healthy, were returned to the pen.

The result of the examination of these guinea-pigs weakened my faith in the validity of the observations and stimulated my desire to find a source of contamination. On November 13 scrapings were made from the hair and skin of a guinea-pig and from the skin of my hands. These scrapings were placed separately in dilute acetic acid made with distilled water, in order to reproduce the technic of blood examinations, and the suspension was centrifugalized and sediment examined. Tubercle-like bacilli were found in both instances.

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THE SOURCE OF ERROR

On November 14 the real source of error was discovered by the simple device (which should have been used before) of fixing to the slide with egg albumin the sediment from distilled water in the laboratory jar. In traversing the smear one time about 600 acid-alcohol-resisting bacilli were found. Smears made with egg albumin alone were negative. Other laboratory solutions made up with distilled water were then examined in the same way, and sodium carbonate, sodium hydrate, ammonium oxalate, etc., were all found to contain similar bacilli. Freshly delivered distilled water (250 c.c.) was sedimented and examined. I estimated that in one cover-glass preparation there were about 30,000 of these organisms. In the tap-water an occasional acid-alcohol-resisting bacillus could be found, about one in each loopful of sediment. The sediment from 250 c.c. of distilled water and from 1,000 c.c. of tap-water was used to inoculate guinea-pigs. They both remained healthy, and at autopsy March 19, 1909, showed no tuberculous lesions.

I now had distilled water made in the laboratory. The receiving flask was treated with pure nitric acid, and, after the first portion of the distillate had passed over, the flask was rinsed with the second portion, and the third portion was saved. The flask was plugged with cotton, which was not sterilized. Examination of the bottom portion of this water (fixing with egg albumin) was negative for tubercle-like organisms.

To a portion of spinal fluid that had shown acid-fast bacilli on previous examination with Canal Commission

distilled water, alcohol was added, and the precipitated proteid centrifugalized and examined with negative result. A portion of a pleural effusion was placed in 0.2 per cent. solution of ammonium oxalate (prepared with the laboratory distilled water), centrifugalized and examined with negative results. A bile-blood culture from an obscure case of remittent continued fever, in which tubercle-like bacilli had been found previously, was centrifugalized and examined. Five suspicious bodies were found, but they were atypical and indefinite.

It was my intention to review the work with water and solutions assuredly bacteria-free, but circumstances at that time and since have prevented. When Rosenberger's first article appeared three months later, however, I selected a positive case of pulmonary tuberculosis and examined the blood by his method, using my old laboratory distilled water in making up the citrate solution and in laking the blood on the slide. I had no difficulty in demonstrating acid-alcohol-resisting bacilli.

I then made three thick blood smears directly on glass slides, laked the blood with the laboratory distilled water and examined them. The first two smears were negative after a thirty-minute examination of each, but in the third I found fifty-seven tubercle-like bacilli in fifty-five minutes. This seemed to be very conclusive, for absolutely the only source of contamination had to be the distilled water which was allowed to dry on the smear after laking the blood. But, my confidence in distilled water having been shaken, I examined with egg albumin the small sediment that had formed and found considerable numbers of acid-alcohol-resisting bacilli.

The identification and description of this organism and the method of contamination remain for further investigation. It is probable that they belong to the grass bacilli. Guinea-pigs were kept in the laboratory where my water was distilled and kept, and the Canal Commission water was delivered in tanks drawn by horses. In both instances it is not very difficult to see how contamination might have occurred.

It seems probable, also, that contamination of distilled water with acid-fast organisms does occur frequently in all laboratories where animals are kept. Recently I have had an opportunity to examine the distilled water of a laboratory in the State of New York. Animals are kept in the basement of this laboratory just beneath and communicating with the room where water is distilled and kept. The still is a Jewell Automatic, and the glass reservoir for distilled water is constantly connected with the still by means of a rubber tube passed through a cotton plug. Acid-alcohol-resisting bacilli were demonstrated in the small quantity of sediment in the reservoir. In a second laboratory, which is on the third floor of a building, in the basement of which animals are kept, no tubercle-like bacilli were found in the distilled water, but there were present acid-semifast (Piffard) spore-like bodies which might have caused some uncertainty if present in suspected specimens.

Rosenberger makes the following statement:

> In the investigations I used sodium citrate solutions made at five different institutions. Some of the spreads were made in one laboratory and laked and stained in another. . . . The solutions of sodium citrate and ammonium oxalate were sterilized by the autoclave or steam sterilizer. . . . Spreads made from the *sediment* [italics mine.—W. V. B.], which occasionally took place in the citrate solution failed to show any so-called citrate bacilli.

Rosenberger fails to state explicitly whether or not a thorough search for acid-fast bacilli in the citrate and oxalate solutions and in the distilled water used in laking the blood was made by fixing the sediment with albuminous material. This procedure in technic is the crux of the whole matter. One result of his animal experiments, 30 guinea-pigs showing acid-fast bacilli in the blood suspensions while having no tuberculous lesions, is strong evidence in favor of contamination rather than of the presence of tubercle bacilli in the circulating blood. Had he examined the blood of these guinea-pigs *before* inoculation, as was fortunately done in my series, his results would probably have been the same. Evidence in favor of Rosenberg's view, however, is furnished by his negative autopsies on seven bodies whose blood suspensions during life had been negative for acid-fast bacilli. But it is only necessary to refer to the almost convincing coincidences of my own work to indicate that "experience is fallacious and judgment difficult."

SUMMARY

1. In examining blood, urine, stools, sputum and exudates for tubercle bacilli, the greatest care should be used to exclude contamination of water and all solutions used with members of the acid-resisting group of bacilli (whether dead or alive).

2. In this investigation, coincidences occurred which were all but convincing of the presence of tubercle bacilli in the blood in every case of tuberculosis.

3. Animal experimentation was negative, but the quantity of blood used for inoculation was too small for the results to be of great value.

4. Acid-alcohol-resisting organisms were found eventually in fresh distilled water furnished by the Isthmian Canal Commission, in tap water, in old distilled water made with care in the pathologic laboratory, and in all solutions made up with the Canal Commission water. These bacilli were either dead or non-pathogenic to guinea-pigs.

5. There is as yet no conclusive proof of the frequent continued presence of tubercle bacilli in the circulating blood.

I wish to express my thanks to Col. W. C. Gorgas for permission to publish this report, and to Dr. Wiliamson, pathologist, and Dr. Glines, in charge of the clinical laboratory, for their interest and assistance in the work.

MEDICAL VERSUS LEGAL RESPONSIBILITY *

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PHILADELPHIA

Among the various problems of human activities there is none more important than the relation of mental state to responsibility. The idea of human liberty and responsibility forms the basis of the penal system. This principle has been recognized by law as indispensable in order to assure the working of social discipline. The doctrine of liberty is old and in its crude form is accepted now, but modern science, based on accurate clinical and experimental methods, has helped to modify to a great extent the fundamental features of the old conception of liberty and responsibility. Mental medicine, through its more elaborate classifications and its continuously widening field of investigations, has revealed new pathologic manifesta-

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tions and types which previously had not been suspected. Normal and pathologic psychology in its turn has availed itself of these discoveries and assisted in throwing light on the obscure problems of personality, memory, volition and reason. The conclusions of modern science lead to a broader and more humane consideration of human responsibility. The old traditions and the material interest which are threatened are not the only elements to be considered. The individual himself, his most intimate and most profound beliefs, the principles of his life in all its manifestations, in the domain of his individual consciousness as well as in their application to social discipline—all these questions are taken into consideration by modern science in its effort to arrive at a proper appreciation of mental responsibility.

Unfortunately the new investigations do not always bear the fruit which could and should be expected. One of the principal reasons is the fact that the studies of the subject are ignored by those who create the laws and those who administer justice. They view exclusively the social side of the law and are not at all interested in psychologic and medical studies which present a different concept of criminality and of the criminal himself. It is true that penal legislation and legal medicine are distinct and separate sciences, but positive criminology must rely on both branches of human knowledge. An intimate unity of these two sciences is an indispensable and an essential condition of progress. Mathematics is a rational science, physics is an experimental science; a union of the two helped to reveal the essential phenomena of matter. Chemistry and medicine are also distinct sciences, but Pasteur's work built the bridge between the two. Psychology finds its elements in mental pathology and physiology. Modern philosophy is bound to look for assistance in medical sciences.

Criminology has for its object the formation of positive laws concerning crimes and the discovery of remedies for them. With this object in view it searches the truth wherever it can be found and takes from medical and legal sciences data which it needs to form a scientific foundation. By the union of the two sciences the old and too narrow boundaries of human conception of liberty and mental responsibility will be broken and progress will be assured.

An attempt in this direction is presented in the present essay, which is based on a personal experience in the courts of the State of Pennsylvania.

In a number of instances of civil and criminal cases in which the question of responsibility was involved the main issue consisted of the test of "right and wrong." Every other element has been invariably eliminated by the skilful attorneys and even by some judges. It seemed in many cases that the criminals' legal knowledge of right and wrong was all that was necessary for determining the question of whether they were mentally responsible or not. The expert has not been permitted to enter into any explanation and to refer to any facts of the criminal's life, character, demeanor or to facts of marked hereditary nature indicating abnormality of mental processes or insanity, feeble-mindedness, imbecility—all showing complete or limited responsibility. Mentally abnormal individuals, as we shall see later, may know the distinction between lawful and unlawful acts and still be not mentally responsible.

The first test of wrong and right was proposed in 1843 by fifteen judges in England. It appears in the phrases "unable to distinguish right from wrong," or to discern "that he was doing a wrong act," or was "ignorant that he was committing an offence against the laws of God and nation." In 1846 Chief Justice Gibson, of Pennsylvania, said:[1]

> A man may be mad on all subjects; and then, though he may have glimmerings of reason, he is not a responsible agent. This is general insanity; but if it be not so great in its extent or degree as to blind him to the nature and consequences of his moral duty, it is no defence to an accusation of crime. It must be so great as entirely to destroy his perception of right and wrong, and it is not until that perception is thus destroyed that he ceases to be responsible. It must amount to delusion or hallucination controlling his will, and making the commission of the act in his apprehension a duty of overruling necessity.

Speaking further on partial insanity, the judge remarks:

> Insanity may be confined only to one particular subject, and then the individual continues to be a legitimate subject of punishment, although he may have been laboring under an obliquity of vision; a man whose mind squints, unless impelled to crime by this very mental obliquity is as much amenable to punishment as one whose eye squints.

Afterward in 1858 the judge said:[2]

> So far as the act is concerned, insanity must be so great in extent and degree as to blind him to the natural consequences of his moral duty and must have utterly destroyed his perception of right and wrong.

The legal conception of insanity as defined in these few examples had such a strong hold that it could not be shaken. It continued to form the basis of decisions and rulings in subsequent cases.

In spite of advancement of scientific research in the field of mental science and psychology, the results are totally or greatly ignored by some jurists. In many instances they continue to follow the old traditional path, no matter how unscientific, irrational and inhumane the test of right and wrong may be.

In discussing the various forms of mental disease we shall see that a person in committing a crime may realize the enormity and the lawlessness of the act and still be irresponsible for the act. The so-called moral insanity presents the most striking example of impracticability of application of the generally accepted test. Here the abnormal moral conceptions, the extraordinary propensities, eccentricities, the abnormal conceptions of obligations, etc., may be present a long time together with the proper conception of wrong in a criminal act. Shall such an individual be considered entirely responsible?

In sane life the knowledge of right and wrong is not the only factor that affects the free choice of our actions. We have to count also with impulses, with powerful motives. The power of restraint is in a certain relation with ideas and feelings which are opposed to the impulses. Will-power may suppress the latter. Will-power depends on the power of deliberation and self-control. The latter two factors differ immensely in various individuals. In normal life consequently an overwhelming pressure of external circumstances may sometimes and in some individuals remove to the background and even check completely the power of restraint or of self-control, although the distinction between right and wrong is totally preserved.

The pathologic states of mentality are characterized precisely by a more or less marked diminution or even complete abolition of the power of deliberation, of will.

1. Commonwealth vs. Mosler, 4 Barr, 264, 1846.
2. Commonwealth vs. Ferth, 3 Phila. 105, 1858, per Ludlow, J.

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of self-control, and yet the ability of understanding that an act is morally wrong or forbidden by law may be present in its integrity.

Let us, therefore, consider in detail the various forms of mental abnormality in connection with the principle of right and wrong.

In melancholia, homicide occasionally occurs. The individual kills because he does not wish the victim to suffer through his sins. The delusion is usually intensified by hallucinations and the latter hasten the act. Here an insane motive prompts the action and the morbid condition has affected the mind generally so that the impulse of action is derived from the state of feeling and thought. The distinction between right and wrong is impossible.

In mania all the functions are exalted and there is more or less marked diminution of controlling power, so that even slight stimuli may lead to intense actions. In ordinary cases the intellect is not affected and the individual committing an unlawful act may know perfectly well the significance of the act and still, because of the decrease or complete disappearance of inhibition power, which forms the essential characteristic feature of the disease, the impulse is overwhelming. It is, however, true that in pronounced cases or in chronic cases there is an intellectual weakness and a confusional state so that the maniacal patient is then incapable of understanding the nature of his acts.

In no form of mental disorder can the legal test of right or wrong lead to more errors than in a certain class of paranoia. In the hallucinatory variety of this psychosis the impulse to poison, to kill, to massacre, to persecute is prompted by the hallucinatory images and the power of discriminating between a lawful and unlawful act is distinctly abolished. In another variety of paranoia, the individual is to all appearances a reasonable being, capable of comprehending an ordinary conversation, capable of discussing various subjects, and still on one particular subject his judgment is paradoxical and abnormal. He may then fail to exhibit in a long conversation evident signs of mental derangement until the subject of his main or only delusion is touched on. This is the so-called "partial insanity." Jurists and laymen then say that that individual's insanity is confined to a particular subject, the man being sane in every other respect. Sometimes they say that the man's criminal act is only the expression of depravity or of passion which in their eyes does not appear to differ materially from those of sane men and consequently the criminal impulse is simply an incident in the life of a sane man who is expected to overcome it. Such an individual, in spite of his apparent sane demeanor and attitude not infrequently labors under a special and fixed delusion which he conceals quite skilfully. He silently contemplates revenge and in the most careful and deliberate manner he plans its execution. The criminal knows perfectly well that he is committing an offence against the law and that he may be punished, but his act is prompted by an irresistible impulse which is the direct result of his delusive ideas. In this class of cases one must consider the true factors affecting the criminal act, viz.: the delusion, the defective power of inhibition and the abnormal feeling. These are the only elements that affect the power of free action. They alone must be taken into account in our attempt to appreciate a paranoiac's action. The legal view is totally inadequate and narrow, as alongside of those morbid elements the realization of an unlawfulness of an act may be well preserved.

In general paralysis of the insane the question of responsibility may come up during any of the periods of the disease. When the dementia is pronounced, there can be no doubt as to the patient's incapacity of distinguishing wrong from right. But before mental failure becomes accentuated, the individual may present only peculiarities of conduct, tendencies to deception, fraud or theft, extravagant mode of living, suspicious relations to his surroundings and in addition to this some physical signs also—all showing clearly the development of paresis. While committing an unlawful or criminal act the patient may be fully aware of the illegality of such act and of the consequences he will have to suffer for such an act; nevertheless the man is insane in the true sense of the word and the criminal act itself, as well as the above abnormalities of disposition, character, conduct, is an early sign of the disease. If the test of right and wrong is strictly applied to such cases, the man must inevitably be punished and when the crime is assault and murder he will be hung or electrocuted. Such a procedure is unquestionably a miscarriage of justice and essentially inhuman. A paretic at any of the phases of his disease is insane: his power of control, his feeling, his deliberation are fundamentally defective, abnormal and consequently his acts are the result of sudden morbid impulses. These are the immediate causes of his irresponsibility, but not the legal principle of right and wrong. Illegal acts are sometimes the first manifestations of the disease and the peculiar features with which they are sometimes surrounded lead us to the right road for a diagnosis.

Senility is not necessarily a cause of irresponsibility. Many individuals preserve the integrity of mental faculties until a very old age. When the senile involution has progressed so far as to abolish completely the faculties, all responsibility disappears. But the involution may be slow, irregular and at the same time progressive, and in such cases there may be a long phase during which the moral conceptions, obligations, the sense of propriety, affection may gradually undergo radical changes so as to lead to most unexpected acts. A senile dement, no matter how slight his dementia may be, is apt to commit the most extraordinary acts. In making a will, for example, he may be guided by petty motives which are easily aroused; anger, desire for revenge, jealousy can be stimulated with the greatest facility, and a will signed by a senile dement may express the most extraordinary, most unjust, most inhumane wishes. As he is easily influenced, he may change his will at each change of his humor. In spite of this variability of actions, he may be fully aware that he is doing a wrong act. He may fully realize the injustice done to persons whom he deprives of the worldly goods and he will, therefore, be legally responsible. The test required by law is positive here, but is it just? A senile dement is in a pathologic state; he is insane in the most proper sense of the word. Scientifically he can not be considered responsible, and consequently by relying exclusively on the classical legal test, injustice is easily done.

Let us now turn our attention to the application of the legal test to the question of responsibility in individuals with congenital mental infirmities. The subject is a very important one, as we deal here not with insanity or qualitative changes of mind which are acquired in adult life, but with quantitative deficiencies inherent to the individual. To this group belong idiocy, imbecility, feeble-mindedness and a host of intermediary, transitional varieties. To this group belong also the deficiencies of a large class of neuropathic individuals

who present during life episodic psychasthenic manifestations, such as 'phobias, obsessions, abulia, *folie de doute, délire de toucher*, etc.

The idiot and the low-grade imbecile can not be expected to realize the enormity and the lawlessness of a criminal act, but when an attempt is made to apply the classical legal test to cases of milder intellectual weakness, to the large class ranging between imbecility to simple backwardness, one is bound to appreciate its inapplicability.

This class of individuals present, besides a certain degree of intellectual inferiority, a certain inaptitude to acquire knowledge, to perform mental operations of a more or less complex nature, but also and particularly an inherent deficiency of inhibitory power. Their whole existence is composed of incidents of an instinctive nature, as the instinct predominates in them and, therefore, their actions are invariably the result of impulses. Some of these individuals may be fully aware of the illegality of a certain act, they may fully realize that murder, assault, arson, deception which they sometimes commit are morally wrong and punishable by law, and yet they can not for the above reasons be held totally accountable for their actions. Is it an act of judicial wisdom to hang or to send to the electric chair or else imprison for life, if they have committed capital crimes, individuals who present an arrested mental development of various degrees, also the so-called peculiar, eccentric, queer individuals, those who present episodically during life obsessions, 'phobias or other deviations from normal cerebral functions—otherwise speaking individuals with an abnormal psychic make-up, although not insane in the proper sense of the word—is it, I say, an act of justice to consider them completely responsible and consequently inflict a corresponding severe punishment for only this reason, that they can discriminate legally wrong from right?

Régis has recently said:

Mankind unfortunately can not be divided from a psychologic standpoint into two distinct categories, viz., one side mentally sane or totally responsible and on the other side, insane and totally irresponsible. Between the two there is a large province, the so-called intermediary zone populated by individuals tainted in various degrees and consequently presenting very different degrees of responsibilities. Although it is impossible to measure the latter by millimeters, it is nevertheless possible to establish for them from this standpoint an ascending or descending scale and consider quite precisely three progressive degrees, viz., slightly, sufficiently and very largely limited responsibility.

The group of cases which I have just discussed is, scientifically speaking, composed of individuals whose responsibility can by no means be total; it must be limited. The latter is not a subterfuge of the expert, but a scientific fact established on scientifically accurate clinical observations which can not be denied. It is, therefore, evident that the legal test of wrong and right can not be applied to those cases, and if it is applied, as it is frequently done, the results are bound to be disastrous as far as the administration of justice is concerned.

Mental disturbances caused by intoxication with alcohol, opium and other poisons deserve some consideration with regard to the medicolegal test. Alcohol is a very powerful etiologic factor of criminality. One may say that it plays a very important rôle in the majority of committed crimes.

When a crime is committed by an individual while in a state of intoxication, several possibilities must be considered, viz.: whether the intoxication occurred in an individual with a pre-existing mental affection or without it, also whether the intoxication was intentional for the purpose of committing the crime during that state. It stands to reason that the delirious or confusional or stuporous states caused by an intoxication *per se* render the affected person irresponsible. It is impossible to expect from an acutely intoxicated individual a clear conception of right and wrong. His reasoning, judgment and discrimination are qualitatively and quantitatively disturbed. If, however, the test of right and wrong is the legal criterion of responsibility or irresponsibility, grave mistakes must be committed; a criminal will become intoxicated intentionally and then claim excuse for his act in the drunkenness; if he is acquitted or only slightly punished on that ground the community will suffer an injustice. On the other hand, an inability to distinguish right from wrong means insanity from a legal standpoint. A man who became incidentally intoxicated can not be considered insane and committed to an asylum. It is, therefore, evident that from every standpoint in such cases the law can not rely on its classical test in determining the question of responsibility.

Chronic intoxication (alcoholism, morphinism, etc.) are characterized chiefly by a gradual progressive mental enfeeblement. But before the latter becomes pronounced there may be evident changes in the affective sphere of life. Irritability, susceptibility, outbreaks of anger, indifference, loss of affection for the near and dear ones—may all be the initial symptoms. These manifestations may be more pronounced than the intellectual enfeeblement which in some cases progresses very slowly. Crimes or any illegal act may be committed during any of the phases of chronic alcoholism, morphinism or other intoxications. They may, therefore, occur at a stage when, in spite of the gradual deterioration, the faculty of discrimination is preserved to a more or less sufficient extent so as to know that his acts are wrong or right. Nevertheless the individual is in a diseased condition, his organs and tissues are undergoing degeneration. His demeanor, attitude, relation to others, show that his volition suffers, his power of inhibition is deficient. Such an individual, even with preservation of a large part of the faculty of discrimination, can not be held totally responsible. The legal test applied to such cases will naturally lead to a miscarriage of justice. Chronic alcoholism, morphinism or other intoxications at any of their phases are veritable diseases requiring medical supervision.

A very important and serious problem confronts alienists and jurists in deciding the question of responsibility of a person during the state of lucid intervals. For the purpose of simplification I embrace under this term intermissions, viz.: apparently normal intervals between individual attacks of a certain mental affection; also brief periods of apparent lucidity of mind occurring in the course of any psychosis, finally the remissions, viz., an attenuation of symptoms for a more or less long period.

A question arises: How much is the legal test of wrong and right justifiable in cases of criminal acts committed during lucid intervals? There can be no doubt that at that time the discrimination between lawful and unlawful acts is possible; consequently should the individual's responsibility be then considered complete?

A person once affected with acute melancholia or acute mania may have recurrences at intervals of

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months' or years' duration. The question is whether the person thus affected can be considered as entirely cured during those intervals. Experience teaches that the degree of recovery and its duration are variable. When we are in presence of an individual with a history of several attacks of a certain mental affection, who has just recovered from one, perhaps to enter another, and who happened to commit a criminal act during the interval—are we justified in considering him completely normal and perfectly responsible only because he is able to realize legally the criminality of his act? The fact of his being repeatedly subjected to attacks of mental derangement, even at long intervals, is a proof of the individual's mental and moral make-up being abnormal and pathological. These remarks are particularly applicable to the lucid moments proper, which occur in the course of a certain psychosis and which are brief or very brief in duration. Such lucidity is only ephemeral, more apparent than real. A civil act such as a will, for example, executed or altered during the lucid interval, should not be considered valid, in spite of the individual's knowledge of the wrong he did to those who are the interested parties.

During remissions, particularly those of paresis, various degrees of improvement are observed in the mentality. The improvement may in some cases be so marked as the patients appear perfectly normal. But it must be borne in mind that a remission is only a temporary amelioration of the psychic manifestations, but in no respect a recovery. In paresis, for example, alongside of apparent lucidity of mind, all or some of the sensory and motor symptoms of the disease, always persist. The disease is essentially progressive and not curable, in spite of great improvement that may occur in the psychic sphere. If, therefore, an illegal act is committed by a paretic during a remission, when he is able to distinguish between right and wrong, should he be considered as a normal individual and consequently held totally accountable for his act? From a physiologic standpoint a paretic is at no stage of his affection responsible, and if the legal test is applied to him he must be imprisoned and severely punished. Such a procedure is certainly a miscarriage of justice, as paretic must be housed in asylums or hospitals instead of in prisons.

There are two other affections in which the legal conception of right and wrong, when applied during apparently lucid intervals, may lead to disastrous consequences. I mean dipsomania and epilepsy. As it is well known, the first is characterized by an episodic irresistible desire to absorb alcohol. The dipsomaniac in the early stages of his infirmity presents apparent lucidity of mind and control of his faculties between the attacks of craving for drink. Dipsomania is always the result of a chronic use of alcohol. Whether in its early or later stages, it is a diseased condition and impulsive acts of any nature are likely to occur in such individuals. It is true that in an advanced period there is marked intellectual enfeeblement. In earlier stages the power of reasoning is sufficient for a realization of the criminality of an act, but, being affected by a malady which interferes with his normal life, although paroxysmally, such an individual can not be considered totally responsible; the responsibility is naturally only limited. The legal test consequently is not applicable to cases of this nature; if it were, the prison or gallows would take the place of hospitals. A dipsomaniac's chief characteristic is a pathologic state of inhibitory power.

Turning our attention to epilepsy, we find that the legal application of the usual test encounters some difficulty. In epilepsy a convulsive attack may be followed by an impulsive act of which the patient has no recollection; and then an epileptic seizure itself may consist of intellectual disturbances instead of the habitual muscular manifestations; instead of convulsions there may be unconscious aggressive acts; the patient may steal, rob, attack or kill. The irresponsibllity in such cases is, of course, absolute. But when violent acts are committed by epileptics in the lucid intervals between the seizures, viz., when they are capable to appreciate the lawlessness and the consequences of such acts, the legal test of right and wrong appears to be the proper test. Nevertheless, if we consider the permanent state of morbid irritability which renders epileptics more than normal individuals predisposed to outbreaks of anger, of violence (and this is particularly true in cases with frequently occurring seizures); if we also consider that fact that the majority, if not all, epileptics are neuropathic individuals whose unstable nervous system is predisposed to various functional nervous disorders, we can conceive that epileptics between the seizures are only incompletely accountable for their acts; their responsibility must necessarily be limited and a strict application of the legal test is not an act of justice.

CONCLUSIONS

The foregoing review of various mental abnormalities leads directly to this deduction that in cases of insanity or other forms of mental deviation there may be a fair understanding of a morally wrong or right act and of a legal or illegal act, and yet there may be a pathologically insufficient controlling force. Every student of psychiatric problems, every psychiatric clinician knows that these two conditions may coexist, and the absence of the first does not exclude insanity or other psychic abnormality, and consequently does not exclude irresponsibility. Indeed, in some cases the absence or diminution of the faculty of inhibition predominates in the mental picture—or forms the entire symptomatology of the disease. The deviation in the manner of thinking, feeling and acting may not be present in its entirety, but may be dissociated in its original elements. The insane or abnormal feeling is just as important as the insane or abnormal thinking. In a large number of cases the change of feeling may for a long time be the earliest or the only manifestation of disturbed cerebral functions and this morbidly altered feeling may be the direct motive for abnormal or criminal actions. Intellectual capacity alone, therefore, can not constitute a proper criterion in consideration of criminal acts, and if the legal test refuses to take into account anything else but intellectual capacity it is radically unscientific and can not properly serve the ends of justice; judicial errors will invariably occur. The whole problem of a test in such cases depends, therefore, on the acceptance of the scientific data accumulated and elaborated from a large number of clinical observations.

To diagnose a mental malady special knowledge is indispensable. The latter is absolutely necessary for the proper appreciation of those cases in which illegal acts are committed by individuals, with all the evidences of reasoning, premeditation and reflection, who are nevertheless lunatics or otherwise mentally abnormal. It is indispensable because sometimes alterations in the psychic sphere are apparently very slight and yet are in reality considerable but concealed. It is indispensable

because discovery of important elements for appreciation of certain crimes which are peculiar or unusual in their nature can be made by men who have had a special experience in psychologic analysis. Examination of these cases must be made not only in relation to the circumstances which preceded, accompanied or followed a certain lawless act, but also and particularly in relation to the entire previous and present medical history of the individual himself in all its minutest details, as they all are important in appreciation of his mental make-up. Every clinician is well aware of the importance of all these details. Reliance on one clinical element at the exclusion of all others is contrary to the scientific spirit. Adherence to such a procedure must invariably lead to errors, and this is especially observable in cases in which mental operations are involved. The law that holds a person accountable for his acts only on the basis of discrimination between right and wrong is wholly inadequate, because it is not based on accurate data gathered from clinical experience. The jurist must cooperate with and, I should say, almost entirely rely on the alienist. But the latter must be given the greatest latitude in presenting all the details concerning the medical history of a given case. Under no consideration should he be restricted to limit his opinion as to the exclusive right-and-wrong test. If the expert is ordered to confine himself exclusively to the determination of whether the accused individual is capable to distinguish legally right from wrong, he is then forced to omit extremely important facts which, as we have seen above, constitute sometimes real elements of alienation. Thus a lunatic, in the proper medical sense of the word, will be condemned while in a state of irresponsibility.

Personal experience in the courts of Pennsylvania has convinced me that this test is very strongly adhered to in the majority of instances. In view of our present knowledge of normal and pathologic processes in the psychic sphere, in view of our experience in the manner and methods of the proper appreciation of abnormal mental operations, in view of the evident injustice that may be done to some individuals who are rather subjects for treatment in hospitals than to be placed in prisons and considered as criminals—for all these reasons I believe a revision of the old classical test of right and wrong is strongly required. A combined effort of medical and legal experts must be made for mutual enlightenment on this important subject and avoidance of the repetition of grave errors of the past will thus be accomplished. Human liberty and responsibility are two most serious elements of life that can not be dealt with in a purely technical manner. They must be viewed from the standpoint of the broadest principles governing the interrelation between the individual and the community.

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ABSTRACT OF DISCUSSION

DR. CHARLES W. HITCHCOCK, Detroit: I had occasion during the past year to review the laws of a number of our states regarding the matter of mental responsibility and in the ultimate analysis it seems to me that a great loophole is afforded to the insanity defense by the breadth of the laws, which almost uniformly permit any proof of insanity as an adequate defense for crime, instead of going further and inquiring not only whether the prisoner is insane, but whether he is so insane as to be irresponsible for his act, and is his act in any way the direct fruit of his insanity, if that be proved.

DR. A. C. BRUSH, Brooklyn: The question of impulsive acts in insanity is one of grave social importance. It is held in the laws of the state of New York, 157 N. Y., by Justice O'Brien, that, although there may be such a form of insanity recognized, that the patient knows the nature of his act and deplores and fears its consequences, yet he is impelled by an impulse over which he has no control to perform the prohibited act. Whatever authority there may be in medicine there is none in law, and that is a wise decision from a sociologic standpoint; otherwise any prisoner might claim that he had an irresistible impulse to commit crime, and consequently society would be at the mercy of the criminal. It is not the fault of law, but the fault of medicine primarily. So long as we can not define insanity, can not define a dividing line between the sane and the insane, for there is none, the law must have some standard to set up for the defense of criminal cases, and that standard is still the old wild beast theory, and it must remain so until medicine evolves some more modern standard. Lawyers and judges are perfectly willing to accept any new standard if we can furnish it; but as yet we have failed, and until that is done, until we ourselves can evolve some more carefully and clearly defined rule, the present one must prevail.

THE STABILITY OF TYPE OF THE TUBERCLE BACILLUS

A STUDY OF THE TYPE OF CULTURES FROM OLD CUTANEOUS TUBERCLES OF BUTCHERS *

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It is now generally conceded that the tubercle bacillus of cattle at times incites tuberculosis in man. This conclusion has been definitely established only through the possibility of distinguishing between a bovine and a human type of bacillus, and through employing this method and isolating the bovine type of organism from human tuberculous infections. The studies thus far carried out in different countries, using the same methods of differentiation, agree in charging the human bacillus with a marked preponderance of infections. In this connection, however, there is one disturbing criticism that is now and again brought forth to shake the confidence reposed in these conclusions, based, as they are, on the differentiation of the types of bacilli. It is asserted by some capable workers that it is possible for the bovine bacillus to be so altered by years of sojourn in the human tissues that its essential characteristics become altered and it simulates the human type of bacillus. Without doubt, if this metamorphosis can readily take place, some of those infections which we now believe to have been of human origin may well have had their source in bovine infections of years ago, and it is to no purpose to designate them as human. In fact, if this be so, the entire method of differentiation which has accomplished so much in the past decade, and promises so much more in the practical and theoretical study of tuberculosis, would have to be regarded as not only unreliable, but misleading.

The main difficulty in studying this question in man is that we are rarely certain of the nature of the original infection and accordingly can not judge of the change of type. Our main reliance is generally circumstantial evidence. An exception to this rule, however, is furnished by those few cases of inoculation tuberculosis in which the bovine source of infection is definitely known. I have with difficulty found two cases of this nature, both in slaughter-house workers, and report a study of them coupled with some other experiments relating to the stability of the types of tubercle bacilli.

CASE 1.—This man had been employed in his present trade for seven years. Four years ago, while slaughtering an animal,

* From the Research Laboratory, Board of Health, New York.

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he cut the middle finger of his right hand on the pointed end of a rib. He gave no thought to this injury until he found that it was slow to heal; he then merely applied various ointments. Gradually a nodule appeared at the site of the wound which assumed its present condition. He was aware of the tuberculous nature of this nodule, and in fact directed me to another worker who had the same skin lesion. I shall not enter into a minute description of the appearance of this nodule. It was of the size of a large pea, brownish-red and very firm in consistency. The glands at the elbow and axilla were not enlarged. The general health of the man was excellent.

CASE 2.—This case was very similar to the previous one. This man, while slaughtering a tuberculous cow, cut himself with a knife across the knuckles. This accident happened about six years ago. He remembered the date, as he was forced by this disability to quit work for some weeks and to enter the employment of another firm. As in the previous instance, a nodule appeared at the site of injury. The nodule was situated over the fourth left metacarpal joint, and resembled the tubercle described in the previous case, except that its surface was rougher and papilliform. This man also was healthy to all appearances; a large hard epitrochlear gland was palpable at the right elbow.

Both of these men were induced to have their nodules excised. After excision the surface of the growths was removed, and they were thoroughly washed in sterile water. Two guinea-pigs were inoculated subcutaneously with each growth. All four animals developed tuberculosis. It is not necessary for me to give in detail the method of isolating tubercle bacilli from the tissues or the criteria for differentiating the types. The method employed was that now generally followed and made use of by me in previous studies.[1] The cultural growth from these two cases proved to be very similar; in fact, I could not distinguish between them. They both grew sparsely on egg media. They also showed a high degree of virulence for rabbits, producing a generalized tuberculosis when inoculated intravenously in the dose of one milligram. In other words, they were typically bovine.

Before discussing these results I shall describe an experiment undertaken with the object of transforming the bovine type of the tubercle bacillus into the human type. An attempt was made to produce a culture medium resembling in its composition as closely as possible the human tissues. From the outset the inherent variance between an artificial culture medium and the living tissues was clearly realized. For this purpose, however, what may be termed "human-placenta glycerin broth" was devised. Human placenta was obtained under strict aseptic precautions and from this a broth was made, treating the placenta just as the beef is treated in preparing the broth for common use. One per cent. peptone, 0.5 per cent. salt and 5 per cent. glycerin were added. The entire preparation of this culture medium was conducted under as sterile conditions as possible. In order not to destroy the complement of the human placenta, heat was applied only to 55 C. It was possible in most instances to obtain a sterile broth by means of filtration through a Berkefeld filter.

Two bovine strains of known virulence, one of them having been under artificial cultivation for many years, the other only recently isolated, were grown on this culture medium for nine months, comprising eight generations. At the end of this period their virulence for rabbits was found to be as marked as at the beginning, showing that in this respect they had not approached the human type. In fact, the only change that was noted was one to be anticipated from artificial cultivation of any nature, namely, a greater facility of growth in the case of the strain which had been the more recently isolated. As this experiment was very laborious and promised so little, it was discontinued.

The question of the stability or variability of the types of tubercle bacilli has been discussed so frequently that I shall not review the testimony. In connection with this report, however, a few words on this subject seem in place. From the outset it should be realized that this question has a practical as well as a theoretical aspect, and that the two need not be in absolute accord. The former considers whether it is in any way possible by natural or artificial means to convert one type of bacillus into another type; the latter, whether the bacilli isolated from man and designated as human have been converted in his tissues from an original bovine type. These two points of view must not be confused. It is true that it has been demonstrated that under artificial cultivation strains may be greatly changed in their cultural and biologic characteristics. Indeed, a culture isolated almost ten years ago from a cow, and kindly sent to me by Prof. Leonard Pearson, I recently found to simulate the human type both in luxuriance of growth and diminished virulence for rabbits. Even after this long period of artificial cultivation, however, its virulence was still greater than cultures of the human type. Another bovine culture of about the same age was found to be markedly virulent for rabbits.

Such experiments clearly can not be translated into practical evidence on this question. Again, it may be advanced that experiments have been reported showing a conversion of human into bovine bacilli by means of passage through cattle; or of bovine into avian bacilli by means of passage through birds. Even if we accept these interpretations, however, and forego the criticism that has been levelled at them justly by others, we find these experiments to be very few in number and far outweighed by the many others in which no conversion of type was effected. When we consider the practical side of this question and draw our arguments from what we know of tubercle bacilli in man, the following should be borne in mind: It is true that atypical strains have been isolated by many investigators, strains neither typically human nor bovine. This intermediate group may in part be accounted for by attributing the variation to a change of environment, for example, of bovine bacilli in the new environment of human tissue. These atypical strains, it should be remembered, are exceptional; among three bovine and four human strains which I have isolated from man none belong to this category. Furthermore, this deviation from type can not be regarded as evidence of the possibility of a complete change of type. In this connection, it is worthy of note that typical bovine bacilli have been isolated from calcareous lymph nodes of human beings; in such instances the bovine bacilli must have existed in the human tissues for years without undergoing transformation. It has never been shown that the older the tuberculous lesion the less the likelihood of isolating bovine bacilli from man; and yet this corollary should obtain if the bacilli are readily converted in the human tissues. The question may be approached from another point of view. It is well known that no case of primary pulmonary tuberculosis has been indisputably proved to have been incited by the bovine bacillus. These cases form the great mass of tuberculosis and have been studied more than all others. If this form of disease is due in some instances to a bovine bacillus which has been transformed in the human body, we should at least occasion-

1. Hess: Cultures of Tubercle Bacilli isolated from Milk, Jour. Infect. Dis., June, 1909, p. 329.

ally encounter this type of bacillus before it has been converted into the human type, namely, in the early stages of the disease. Not only do we know that this is not the case, but we find that even the intermediate types are rarely met in the primary pulmonary cases. So that it would seem from a practical standpoint the question of transmutation of types may well be disregarded and we can safely continue to investigate the etiology of tuberculosis by means of differentiating the types of bacilli.

The two cases of cutaneous tuberculosis which I report claim some degree of interest because they constitute bovine infections occurring in adults. The fact that they remained localized should not be attributed to the low degree of virulence for man of the bovine bacillus, as it is well known that cutaneous affections due to the human type of bacillus, such as lupus or the "anatomic tubercles" contracted in the dissecting-room likewise do not tend to systemic invasion. Their main significance, however, lies in the fact that they furnish exceptional instances of bovine tubercle bacilli which have lived in the human tissues for many years without acquiring characteristics of the human type. From this point of view they constitute evidence against the conversion in the human tissues of bovine bacilli into human tubercle bacilli. It would be interesting and of undoubted value if those who have access to similar long-standing cases of tuberculosis would make them the basis of bacteriologic study.

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SYPHILITIC PSEUDOPARALYSIS*

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Few diseases have been studied with greater care than syphilis, nor have their individual manifestations been noted more in detail, and I am perhaps not far wrong in saying that the literature of medicine is more voluminous on syphilis than any other single disease. This is not a matter for surprise, for no disease has a more widespread influence on human ailment; yet it appears to me that, while the acquired form of syphilis is reasonably well understood, we are still lamentably ignorant of the significance of the hereditary form as it relates to many of the obscure conditions of childhood and young adult life. I therefore deem it not inadvisable to draw attention to just one manifestation of this taint and to report two cases illustrative of several observations which have been made on this class of case.

Syphilitic pseudoparalysis is a manifestation of inherited syphilis which exhibits itself during the first few months of life in a failure, disinclination or inability to move one or all of the extremities, and is variously alluded to in the literature as syphilitic pseudoparalysis, Parrot's paralysis, or merely described under the pathologic condition syphilitic epiphysitis, and belongs under the general class of osteochondritis.

There are various gross appearances dependent on the stage or degree of cartilaginous inflammation. Thus there may be a ring or collar apparent on palpation, partly or wholly surrounding the bone at the junction of the epiphysis with the shaft (usually upper) due to proliferation of the cells, or there may be a distinct separation at the same point due to absorption of the cartilage with accompanying free motion at the false joint thus formed. Or again, there may be complete breaking down of the tissue with pus formation, finally rupturing through the skin forming an open abscess. Such cases, however, are thought to be due to secondary pus infection.

The first symptom to attract attention to this condition is the fact that the child does not move one or all of its extremities. Only one upper extremity may be affected or both arms and both legs. The frequency with which the various extremities are affected does not appear to be settled, and the only observer who reports a sufficient number of cases from which conclusions may be drawn is Bednar, who lists nineteen, as follows: Arms alone, 16 times (does not state whether one or both arms were affected—presumption both); legs only, once, and all limbs twice. While some authors state that it may occur in only one extremity, none cites a case without either both arms or both legs or all four extremities being affected. In case one or both arms are affected the child will lie with them rotated so far inward that the palms face outward. These cases resemble and are in appearance identical with brachial birth paralysis. When the legs are affected, however, the rotation is apt to be outward. Usually the affected limb is in a state of flaccidity, and if the arm is lifted and let fall it will drop again to the same position; or it may be rotated, and if there is separation at the epiphysis it may be moved freely at the point of separation. I doubt if in such cases as this the children ever give evidence of pain, but they certainly have no power of voluntary motion.

In other instances there is a more or less spastic condition, the joint resisting motion and the child crying out with pain on being handled. In addition are the symptoms which I have already described apparent at the joints.

The exact cause of these various symptoms, all accompaniments of the same pathologic process, seems to be as yet undetermined. Sundry theories have been advanced in an attempt to explain the several states of immobility; thus, some consider the flaccidity due to an inability to move on account of separation or absorption of cartilage, some to myositis, others to pain, and still others to involvement of the peripheral branches of the brachial plexus. Each of these may have a basis of fact in individual instances, but are all open to objection when a number of patients are observed, and do not hold true for all cases. Those which I shall report illustrate some of these points very well.

The diagnosis of this condition is exceedingly important since epiphysitis is said to be the most frequent manifestation of inherited syphilis and further because it may be the only evidence of the presence of the taint. There are but four conditions for which it is likely to be mistaken, viz.—scurvy, infantile paralysis, septic epiphysitis and brachial birth paralysis.

Scurvy is rarely seen before the fifth—usually from the sixth to the fifteenth month—is always bilateral and affects the shafts of the bones, while epiphysitis is located at the extremity, though it is well to bear in mind that cases have been described in which tenderness was present along the shaft as well—and appears rarely after the third month. Infantile paralysis also appears at a later date, is frequently epidemic and the history, onset and course are entirely different. In septic epiphysitis the constitutional symptoms are pronounced and the temperature elevated.

The diagnosis from brachial birth paralysis seems to me to be the most important and presents the greatest

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difficulties, for, as has been stated before, when the arms alone are affected the picture is more or less typical of Erb's paralysis. It is to be noted, however, that in Erb's paralysis there is usually a history of difficult labor, with traction either with the forceps or with the hands as in delivery of the shoulders, or in lateral traction as in the delivery of the after-coming head in breech cases. It has been known, however, to occur in normal labors. Erb's is usually unilateral, while pseudoparalysis is more apt to be bilateral. (This latter statement is largely inferential since, as stated, I am unable to find positive statements on this point.) The time of the appearance of the immobility of the two conditions may be the same. When separation is present or the characteristic bony ring can be felt, the diagnosis is rendered easy. In Erb's paralysis the electric reaction of degeneration may be present early, whereas in pseudoparalysis, as stated by Holt, the reaction is normal. It is well to bear in mind on this point the statement of Dr. Eustice Smith, that a form of real paralysis is occasionally observed, affecting the branches of the brachial plexus, causing partial or total loss of motion. It is not stated by him whether this paralysis improves under specific treatment. In Erb's paralysis there is a selection of definite groups of muscles and even a sympathetic involvement as shown by narrowing of the palpebral fissure and contraction of the pupil (Bailey). In pseudoparalysis the various groups of muscles are rendered immobile but there is an apparent selection or involvement of the sympathetic.

In Erb's paralysis slight tumors are sometimes seen at the point of the tear in the nerve fibers. Some patients with Erb's paralysis improve spontaneously, in which event it appears that the diagnosis may become difficult if not impossible. In patients with pseudoparalysis not treated promptly there may be a permanent deformity from partial or complete absorption of the cartilage, and in after life a case of this deformity may again be indistinguishable from the similar deformity resulting from Erb's paralysis, cases of which rarely escape without some deformity. Bailey states that "as a practical fact electricity is rarely necessary in the diagnosis of this form of paralysis, as the flaccid condition of the affected muscles is usually evident before the child is old enough for electrical examination to be feasible." I would again suggest the fact that the diagnosis may not be so easy as this for the reason as stated, that in pseudoparalysis the flaccidity may very closely resemble the condition found in Erb's paralysis.

The following cases illustrate the various points which I have attempted to bring out:

CASE 1.—Colored male 4 weeks old, well developed and nourished; in fact, normal in general appearance, somewhat inclined to be fat. The mother stated that child had appeared all right at birth and up to two weeks of age, when it began to lose use of arms, and that now it made no effort whatever to move them.

Examination.—I found the child lying in its mother's arms apparently comfortable and contented. Both arms hung limp by the sides, and rotated inward to such an extent that the palms faced outward, and at first I thought I had a case of bilateral Erb's paralysis. The arms were freely movable, dropping again to the same position on being lifted and let fall. No attempt was made on the part of the child to move the arms or even the fingers and tickling the palms elicited no reflex. There was apparently a complete paralysis of the entire upper extremity, but not the slightest evidence of pain either on pressure or on motion. The junction of the epiphysis and the shaft of the upper end of the humerus presented a slight enlargement surrounding the bone, barely perceptible owing to the fatness of the infant. There were no discernible blemishes of any kind, in fact, nothing to suggest anything but a healthy infant, except that the spleen was palpable. The temperature was normal, and was at each subsequent examination. I sought out the granny who had presided at the delivery and with difficulty ascertained that the birth had been normal in every particular, of short duration and that this was the mother's fourth child. The cord was not around the neck.

Treatment.—Mercurial inunctions were instituted at once, and after the fourth treatment the child began to move the fingers; in ten days good use of the forearms occurred, and by the end of three weeks the child seemed to be entirely well, including disappearance of thickening of the epiphysis and enlarged spleen. This child died one year later of enterocolitis.

Remarks.—At the time of my first visit I was unable to secure any family history which would aid in a diagnosis. Several months after, however, I had an interview with the father who gave a good history of secondary eruption, following sore on penis, at the time of conception.

CASE 2.—Colored male, 5 weeks old, presented a typical picture of syphilitic infant. He was poorly nourished, had fissures around mouth and anus; skin was dry and scaly, and there was evidence of subsiding pemphigus of palms and soles. Spleen was enlarged, liver apparently was not.

Examination.—The arms hung in the characteristic position already described, no attempt being made at motion, though both arms could be handled and moved freely without evidence of discomfort. In this case the examination of the arms was easy, since the child was thin. A distinct separation could be detected at the upper cartilage on both side with free rotary motion. In this case, as in the first, there was no reflex of the palm, and, in fact, so far as the upper extremities were concerned, it was a reproduction of Case 1 except for the cartilaginous ring. The lower extremity, however, presented a different picture. The legs were rotated outward and were in a state of spasticity and could not be moved on account of the pain thus caused. I could make out no thickening or separation. The legs were rigidly flexed and were exceedingly tender on pressure as well as painful on motion. On tickling the soles of the feet the toes were readily flexed. At no time was there any temperature. There was possibly some tenderness along the spine but this was difficult to determine.

Treatment.—The inunctions were begun at once, and by the end of two months the child was apparently perfectly healthy. It soon passed from observation and I have never seen it since.

In these cases we have every one of the varieties which I have seen described. In the first we have a well-developed child with flaccidity of the upper extremities, slight thickening of the cartilage, no pain on motion or tenderness on pressure, no attempt to move even so much as the fingers and no response to tickling the palms. In this case the immobility can hardly be ascribed to pain, but, as it appears to me, the general appearance is strongly suggestive of nerve involvement.

In the second case we have a poorly developed child, flaccidity of upper extremities as in Case 1, separation of the epiphysis, no attempts to move even fingers, no pain or tenderness on handling or motion. Here the immobility might be ascribed to separation of the epiphysis, but this does not account for the lack of motion in the fingers and the failure to respond to irritation of the palm, and again we have a strong suspicion of involvement of the nerves.

As noted, the legs presented a different picture. They were rotated outward. There was every evidence of pain on pressure or the slightest motion. Muscles were contracted and painful and general spasticity was present, yet the toes contracted when the soles were tickled. In this case we have the suggestion that immobility was due to pain either from myositis or epiphysitis, the muscles contracting in an effort to immobilize the joint, rather than from nerve involvement.

The treatment of the condition should be directed to the counteraction of the specific poison by means of inunctions. Sutherland suggests splints and local applications of mercurial ointment, which he believes to be of special value since he has seen pseudoparalysis develop while child was taking general syphilitic treatment.

I have attempted to write nothing new, but merely to call attention to the importance of the recognition of this condition and its diagnosis, and in the light of what we have before us it seems to me that further investigation of this very interesting condition would be profitable.

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NODULAR OPACITY OF THE CORNEA

WITH SPECIAL REFERENCE TO ITS ETIOLOGY*

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The ophthalmic literature of the last thirty years contains occasional references to a rare ocular disease characterized by the presence of fairly well-defined opacities situated in the central portion of the cornea. These opacities vary in size and contour and lie in the otherwise relatively clear tissue. The condition was not recognized as a distinct malady until Groenouw, in 1890,[1] and again in 1898,[2] made it the subject of clinical investigation and pathologic study. Since then a number of observers have dealt with the condition and a few have subjected the diseased tissue to histologic examination.

Groenouw states that nodular opacity of the cornea begins with slight inflammatory signs, which are often so insignificant as to escape the notice of the patient. It attacks both eyes and is distinguished by the appearance of numerous, small, roundish or irregular, gray discrete opacities in the otherwise relatively clear corneal tissue. The larger masses, which are situated principally in the superficial layers of the center of the cornea, attain a diameter of 0.25 mm. The overlying epithelium is frequently elevated, but not vesicular. Under high magnification the corneal surface between the masses is seen to be very faintly cloudy.

Our knowledge of the condition was considerably extended by Fuchs[3] on the basis of eight carefully observed cases. He found that the trouble showed a special predilection for young men; (11 males, 1 female, in the 12 cases in the literature up to 1902). It was characterized by: (1) considerable roughness of the corneal surface; (2) gray, roundish or irregular opacities situated in the pupillary area and projecting above the corneal surface; (in general the larger irregular masses were surrounded by smaller roundish ones, the latter exhibiting a circular arrangement); (3) a faint diffuse opacity of the rest of the cornea which, under high magnification, resolved itself into very tiny punctations. The configuration of the opacities slowly altered in the course of years.

The extreme rarity of this disease is attested by the fact that Fuchs encountered the condition only eight times in a material comprising upwards of 250,000 eye cases. At present writing the literature contains only 22 authentic cases. (Groenouw 2, Fuchs 8, Holmes-Spicer 2, Chevallereau 1, Krukow 3, Gillius 2, Wehrli 2, Treacher Collins 1, and Paderstein 1.)

SYMPTOMATOLOGY

The disease is ushered in by moderate photophobia, epiphora, and occasionally a foreign body sensation. There is no true pain but only a sense of ocular discomfort. These signs are accompanied by diminution of visual acuity. Throughout the long course of the disease there is a conspicuous absence of active inflammatory appearances, although now and again a transient redness, accompanied by photophobia, will manifest itself. The course of the disease is essentially chronic.

In view of its progressive character and rebelliousness to all therapeutic methods, the disease is one that deserves the careful attention of ophthalmologists. The final visual outcome varies from tolerably good vision to finger-counting.

DIFFERENTIAL DIAGNOSIS

Nodular opacity of the cornea is to be distinguished from a number of more or less similar conditions. Fuchs calls attention to some distinguishing features between this disease and superficial punctate keratitis. In nodular opacity the spots are compact and homogeneous. There are no inflammatory appearances and the clinical aspect may remain unchanged for years. In superficial punctate keratitis, on the contrary, the spots are made up of an agglomeration of the very finest dots. Inflammatory appearances are invariably present and the condition undergoes rapid changes. Von Reuss,[4] under the name of "keratitis maculosa," describes a disease consisting of disc-like masses surrounded by a ring occupying for the most part the periphery of the cornea, but also at times the center. Nummular keratitis (Stellwag[5]) consists of very large masses of a saturated yellowish tint lying mostly in the periphery of the cornea and in the superficial layers. Both types, in contradiction to nodular keratitis, offer a good prognosis. Grill-like keratitis is a condition which, in respect to its course, its situation in the center of the cornea and the elevation of the epithelium over the lesions, presents many points of similarity. It is distinguished by the very definite mesh-work or interlacing arrangement of the linear opacities. Fuchs suggests that nodular opacity bears some resemblance to certain cases of old eczematous keratitis in which a thinning of the epithelium over one or more of the denser opacities produces a bluish-white prominence of the corneal surface. According to Morax[6] the disease may be confused with syphilitic nodular keratitis, in which the infiltrations, either solitary or in groups, are of a grayish-yellow color. They develop slowly, last for several months and finally disappear, leaving only insignificant deep or superficial opacities in the cornea. Under the title "Spotted Family Degeneration of the Cornea," Fehr[7] describes a condition observed by him in two sisters and a brother. Each cornea showed a milky opacity in which scattered dots of greater saturation were distinguishable. Under magnification the diffuse opacity resolved itself into tiny punctations and the more saturated masses were seen to be due to the crowding together of the individual punctations. This condition is distinguished from nodular opacity by the

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Arch. f. Augenh., xxi, 281-289.
2. Arch. f. Ophth. (von Graefe's), xlvi, 85.
3. Arch. f. Ophth. (von Graefe's), 1902, liii, 423.
4. Wien. klin. Wchnschr., 1889, No. 34.
5. Wien. klin. Wchnschr., 1889, p. 613.
6. Encycl. Franç. d'ophth., v, 949.
7. Centralbl. f. prakt. Augenh., 1904, p. 1.

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fact that the periphery of the cornea is involved and that the corneal surface is smooth and shiny.

HISTOLOGY OF THE AFFECTION

Fragments of the diseased tissue have been studied histologically by Groenouw,[7] Fuchs,[8] Chevallereau,[8] and Wehrli.[9] The only report based on the examination of the entire globe is the recent one of Paderstein.[10] Groenouw's specimens showed a foreign substance lying partly isolated and partly in large masses in the substantia propria of the cornea. Just beneath the epithelium the material appeared finely granular and exhibited a certain parallel or interlacing arrangement. It had the appearance of a foreign substance interposed between the corneal fibers. Adjacent to the deposits the corneal corpuscles were deformed and greatly increased in numbers. There was no change in the epithelium or Bowman's membrane. From the chemical reactions of the amorphous substance Groenouw was led to believe that it was of a hyaline nature. The presence of this substance he explains on two grounds: either it was a transformation product of the corneal substance or a foreign mass deposited in it. He admits the possibility of a combination of the two processes.

In Case 6 of Fuchs' series, a fragment of the corneal tissue from the pupillary area, 4 mm. in diameter and 0.25 mm. in thickness, was excised with a corneal trephine. The pathologic appearances, which were confined to the superficial layers of the cornea, were as follows: The epithelium covering the nodules was greatly thinned and the cells flattened. The more superficial corneal lamellæ were swollen and, at sites corresponding to the nodules, were separated. Between the superficial and deeper layers appeared a deposit of amorphous substance, which was not present beneath the nodules. The substance contained isolated corneal fibers and wandering cells. Bowman's membrane could not be seen. When stained with thionin those layers beneath the amorphous deposit took a violet color, instead of the usual blue-green of normal corneal tissue. There appeared then four alterations from the normal: (1) swollen appearance of the upper corneal layers throughout; (2) fibrillation of these layers in limited areas; (3) a deposit of amorphous substance; (4) a change of the underlying lamellæ. Fuchs assumed a metabolic change in the superficial layers leading to the formation of a pathologic fluid. This fluid brought about a swelling of the superficial layers, and, accumulating between the lamellæ, separated and finally destroyed them. He was unable to reconcile the anatomic findings in his case with those of Groenouw and others and was forced to adopt the hypothesis that etiologically and anatomically different processes gave rise to clinically indistinguishable corneal conditions. He concludes that the disease is due to a general, as yet unknown, nutritional disturbance of which the sole expression so far observed is the eye disease.

Chevallereau[8] found crystals of sodium urate lying between the superficial corneal layers.

Paderstein[10] reports the only histologic examination of the entire globe in a case of nodular opacity of the cornea. He found thinning of the epithelium and altered relations of the round and cylindrical cells. The space of the missing cells was filled with a homogeneous hyaline substance, which also appeared on or slightly separated from Bowman's membrane. In places the nodules appeared to be made up of layers of hyaline "like the flakes of an onion." Elsewhere the hyaline assumed a fibrous appearance. Bowman's membrane varied in thickness and was pressed together by the overlying nodules. In places a sharp differentiation between the hyaline and Bowman's membrane was not possible. The hyaline lay also on the basal epithelial cells. These, and to some extent other epithelial cells, had separated from neighboring cells. Their nuclei were partly normal, partly degenerated, and vacuolated. There were no pathologic changes in the corneal parenchyma. Paderstein believes that the basal epithelial cell layer was the primary seat of the affection, and outlines the series of pathologic events as follows: A degeneration of the epithelial cells resulted in the formation of hyaline. The nodules and projections were formed by agglomeration of degenerated cells. Between the cell groups, which had passed through a complete transformation, were scattered some in which the degenerative process was not completed. Thus are to be explained the cells and cell remains in the spaces between the layers of the deposit.

From the above descriptions it can readily be seen that the histologic findings, though presenting some points of similarity, are widely at variance in others. Entirely unrelated to any appearances described by other observers are the findings of Wehrli.[9] This author encountered the disease in two brothers, one of whom had passed through an attack of tuberculous peritonitis. He excised some of the nodules and introduced them into the anterior chamber of a rabbit. There was a sharp reaction with the appearance of a transient yellowish exudate around the fragments, but nine months later the rabbit's eyes were apparently normal. The histologic findings included enlargement of a portion of the fixed corneal cells and increase and regressive processes in a number of the same. The large cells were arranged in groups and bore a striking resemblance to the histologic disposal of the cell nests of epithelioid nodules of tuberculous or syphilitic granulomata. Furthermore, there were found large cells with several nuclei, similar to giant cells. The connective tissue fibers had a sort of cicatricial character. Those next to the so-called tubercles were granular and homogeneous. An amorphous substance deposited in the superficial layers was regarded by Wehrli as necrotic débris from the destruction of tuberculous nodules. By the Ziehl-Nielson method Wehrli found, after long search, two apparently segmented, slightly curved bacilli, coloring faintly red, which he believed to be tubercle bacilli.

In view of the extraordinary rarity of the affection, and also of Wehrli's dictum that every observed case deserves recording, I venture to present the following typical example of nodular opacity of the cornea:

REPORT OF CASE

General History.—R. V. O., aged 27, male, married, came under observation Oct. 30, 1908. His mother died of tuberculosis of the lungs at the age of 40, the patient being 10 years old at the time. A maternal aunt also died of the same disease. As a young boy the patient was perfectly healthy. At the age of 9, he fell out of a swing and landed on his back. The following day a "ridge" appeared around the waist, not accompanied by pain. This remained and two or three weeks later a swelling appeared on the left hip, which was lanced and discharged pus. Other swellings of a similar nature appeared to the right of the sacrum near the coccyx and over the left gluteal muscles. All these swellings were lanced and discharged pus for several years, finally healing when the

8. France méd., May 2, 1891.
9. Ztschr. f. Augenh., 1905, xiv, 322.
10. Klin. Monatsbl. f. Augenh., February, 1909, p. 156.

patient was about 17 years old, leaving large deep scars. For a time the left knee was flexed and the patient had to use a crutch. There was no pain in the joints at any time. At the age of 16 the patient passed several kidney stones, preceded by severe pains in the lumbar region. Six years before he came under my observation he had a severe attack of measles and gonorrhea three years later—mild attack, no complications. He positively denied syphilis. For the past ten years he had been exceedingly healthy, though troubled with a winter cough. His average weight was 135, maximum 150 (present weight.)

General Examination.—I am indebted to Dr. L. M. Warfield for the general physical examination. This showed a puckered scar on the left groin three inches in length, one on right groin, one large deep scar opposite the left trochanter, one on each side of the upper part of the sacrum, small one to the right of the coccyx, one puckered scar below the edge of the gluteus maximus. At the lowest lumbar spine the bones were thickened; there was no pain, no limitation of motion, slight limitation of adduction. The lungs and heart were normal. The scars were typical tuberculous cutaneous scars. There was no evidence of syphilis.

Ocular History.—About three years before the time of examination the patient noticed a sandy or gritty sensation accompanied by slight epiphora and photophobia and found that his sight was growing dim. There was no noticeable redness and at no time any true inflammatory signs. A year later he consulted an oculist who used various local medicaments and gave mercury by the mouth. Vision grew slowly worse, though there were transient periods of slight improvement.

Ocular Examination.—There was no conjunctival or ciliary congestion in either eye. R. V. 18/150. L. V. 18/96. Examination with the binocular loupe disclosed five or six, very irregular, rather ill-defined grayish masses occupying the center of the right cornea. These masses were, in general, grouped in the form of an ellipse, the center of which was occupied by a nebulous area. The left cornea presented much the same appearance, the opacities being of irregular shape, rather more sharply defined than in the right eye and arranged in the form of a flattened ellipse. The center of the ellipse was rather clearer than in the right eye. With the aid of the Zeiss corneal microscope a very beautiful picture presented itself. In the right eye (Fig. 1), the irregular masses appeared fluffy, like cumulus clouds, with ill-defined margins, shading into relatively clear cornea. The masses could not be resolved into separate dots, but appeared quite homogeneous. Where two separate masses lay near together there was a decided tendency for them to merge or coalesce. The tissue occupying the center of the ellipse was distinctly nebulous. Here and there, the epithelium over the nodules appeared elevated, so that it formed a tiny facet and reflected a laterally projected pencil of light. Outside the involved central area the cornea was very faintly nebulous and this cloudiness extended right up to the corneal margin. The lesions were situated in the superficial layers, but here and there appeared to dip well back into the corneal stroma. The iris showed no alteration. In the left eye (Fig. 2) the masses were somewhat better defined than in the right, i.e., the line of demarcation between the individual nodules and the contiguous tissue was better defined. The nodules themselves were not as fluffy as in the right eye but appeared homogeneous. The space between the masses was rather less nebulous than the corresponding space in the right eye. The epithelium over the nodules was elevated and irregular. The periphery of the cornea contained an extremely delicate gray opacity which resolved itself into the finest of dots. The fundus of each eye was normal. Tension normal; pupils equal; pupillary reaction normal both to light and convergence. The general appearance of the cornea is well illustrated by the accompanying pictures. These were drawn, however, some three months after treatment was begun and do not show the distinct internodular opacity in the left eye visible at the first examination. The history of the case, together with the quite typical appearance, left no doubt as to the diagnosis of nodular opacity of the cornea.

Treatment and Course of Disease.—Bearing in mind the clear tuberculous family history, and the unquestioned tuberculous nature of the old cutaneous ulcerations, I was impressed with the possibility that the eye lesion might be of the same nature. It was, therefore, decided to try the effect of a diagnostic injection of tuberculin.

October 31: At 3 p. m., 3 mg. of old tuberculin were injected into the upper left arm. The following day, November 1, 11 a. m., temperature was 98.4 F. There was very slight redness and soreness at the point of inoculation, with some palpable thickening. At 8 p. m., temperature 99 F.

November 2: Arm quite sore; 3 mg. old tuberculin were injected in the right arm.

November 3: Both conjunctivæ were injected and there was some ciliary congestion. Patient complained of much discomfort, increased photophobia and stickiness of the lids. On examination with the corneal microscope the nodules in the right eye especially were denser and more fluffy than at the first examination. R. E. V. 18/192. L. E. V. 18/96.

November 5: Both arms were found to be indurated at the site of the injections. Three mg. old tuberculin were given.

November 6: Patient stated that he had had a bad night; severe headache; now felt quite sick. At 10 a. m., temperature 99.4 F. Large induration at point of inoculation. At 4 p. m., temperature 100.6 F. R. V. 18/75. L. V. 18/38. The corneal microscope now showed a distinct thinning of the cloudy nodules in the right cornea and a diminution in the internodular opacity. The left eye showed a very distinct diminution in the internodular opacity but no noticeable change in the nodules themselves. The patient expressed his surprise at the sudden improvement in vision.

Diagnostic tuberculin injections were suspended and the patient was not seen again until November 12, on which date therapeutic doses were instituted, beginning with 0.01 mg. of old tuberculin. At intervals of three or four days old tuberculin was injected, increasing 0.01 mg. at each dose.

December 3: The dosage was 0.05 mg. and, for the first time, evoked some soreness at the point of injection.

The dosage was reduced to 0.02 and gradually increased at intervals of a week to 0.03, 0.04 and finally 0.055 mg. when treatment was suspended. The therapeutic injections between Nov. 12, 1908, and Jan. 13, 1909, numbered fifteen. At each visit the corneæ were very carefully examined with the corneal microscope and it was possible to note a gradual diminution in the internodular opacity, especially of the left eye.

On March 1, 1909, the masses were decidedly less dense and in the right eye were more sharply delimited than at first. This change in the appearance was accompanied by gradual improvement in vision so that at this date R. V. 18/60. L. V. 18/30. The patient was much gratified with the improvement in vision as he had about made up his mind that he was going blind. Local treatment has been confined to bland collyria and (for a week only) dionin 3 per cent solution. This was suspended, as it provoked a good deal of discomfort. I was anxious to secure a fragment of the cornea for histologic examination but the patient declined any operative interference whatsoever.

I have later learned that the patient's sister, residing in Kentucky, has had defective vision for a number of years. To a letter requesting particulars of the malady she replied that she had been troubled with her eyes for five years. There had never been any inflammation, the main difficulty being defective vision. She had tried several pairs of glasses but found none that helped. "Over the sight of the eyes are several white specks about the size of a pin-head."

We have, then, in a patient with a very clear family history of tuberculosis, who himself had passed through a severe cutaneous tuberculous affection, a typical nodular opacity of both corneæ. The absence of any etiologic factor aside from tuberculosis which might conceivably have given rise to such a process, the general and local reaction to the diagnostic tuberculin test, the lessening of the density of the nodules, the clearing of the internodular opacities and notable improvement in vision under tuberculin therapy, lead me to the belief that this case is an attenuated tuberculosis of the cornea.

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Writers subsequent to Wehrli have been disposed to ignore his findings and conclusions, seeming tacitly to assume that because they did not coincide in any particular with those of other observers they must be faulty. In the light of my own case such a point of view seems to me not justified.

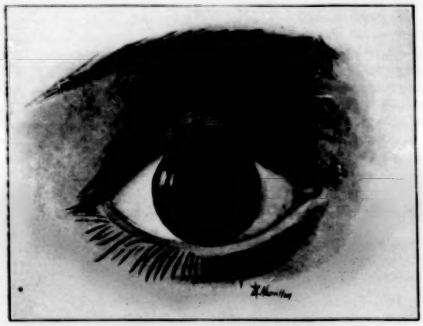

Fig. 1.—Nodular opacity of the cornea, right eye.

In the present state of our knowledge with regard to this peculiar affection, we must adopt the view that cases of nodular opacity of the cornea, clinically indistinguishable, may differ with respect to their etiology and histology. It seems proper to regard the cases of Groenouw and Fuchs as instances of a general nutritional disturbance of which the sole expression is the corneal lesion. On the other hand, the histologic findings of Wehrli and the diagnostic and therapeutic

Fig. 2.—Nodular opacity of the cornea, left eye.

efficiency of tuberculin in the case here reported seem to indicate that some of these cases may be, as Wehrli has pointed out, examples of attenuated tuberculosis of the cornea.

626 Metropolitan Building.

ABSTRACT OF DISCUSSION

DR. EDWARD A. SHUMWAY, Philadelphia: Any communication which helps to determine the etiology, and to suggest the treatment, of an obscure condition must be considered of great importance. Reports of cases of nodular keratitis are becoming more frequent in ophthalmic literature, especially in Great Britain. Hancock (*Trans. Ophth. Soc. United Kingdom*, 1905, p. 64) reported two in a mother and son, and Dawnay (*ibid.*) reported two in sisters in 1905. Leslie Buchanan (*Ophthalmoscope*, December, 1907) gave the histories of two brothers in whom the disease was apparently arrested, and the vision much improved by iridectomy, and three cases in one family were seen by A. McNab (*Trans. Ophth. Soc. United Kingdom*, 1907, p. 81) and described in the same year. In December, 1908, Folker (*Ophth. Rev.*, xxvii, p. 385) reported seven cases in three generations of one family before the Ophthalmic Society of the United Kingdom, and in the discussion McNab advanced the suggestion that a tuberculous diathesis might be the cause of the condition. Finally, a patient was shown by Zentmayer before the Ophthalmological Section of the College of Physicians, in Philadelphia, in February, 1909, in whom a general but no local reaction to tuberculin was obtained. So that even if we limit the case to the typical nodular form, with discrete opacities in the center of otherwise relatively clear corneæ, and with roughening of the surface, as a result of the elevations of the corneal epithelium, and exclude the cases of grill-like keratitis and family degeneration of the cornea, often considered to be of the same general type, the literature of the subject has greatly increased in recent years.

Most surgeons who have reported cases of nodular keratitis have assumed that some dyscrasia was at the bottom of the trouble, and that the opacities were due to degenerative changes,

Drawing showing corneal lesions in left eye in case mentioned by Dr. Zentmayer in the discussion. Right eye practically the same.

beginning either in the corneal epithelium or in the superficial corneal lamellæ. If it can be shown that in at least some of them tuberculosis is present, a notable advance will be made in treatment. The entire absence of inflammatory reaction and the absence of cellular infiltration in the majority of cases which have been examined histologically, except as in Paderstein's case, as a secondary condition, have probably prevented the authors from taking tuberculosis into consideration, as the ordinary forms of tuberculous keratitis are attended with stubborn and well-pronounced signs of inflammation. Moreover, the occurrence of a general reaction to tuberculin is not proof positive that a local condition in the cornea is tuberculous, although of sufficient importance to warrant antituberculous treatment. It is imperative for us to examine each new case minutely for the presence of a tuberculous history, or a focus of tuberculosis elsewhere in the body, and especially to try the subcutaneous test with tuberculin. In the presence of such a factor, the treatment with tuberculin injections, commencing with small doses, as Dr. Green has done, should be adopted. If such treatment fails of success, the results obtained by Buchanan by iridectomy should be remembered, in our efforts to check what has been considered a hopelessly progressive form of blindness.

DR. WILLIAM ZENTMAYER, Philadelphia: I hesitate to report a case in discussion, but I desire to record the condition present in my case [see illustration above] and to report the pathologic findings. The epithelium varies from 20 to 30 cell layers to 2 or 3 cell layers deep. There is a general cloudy

degeneration of all the epithelial cells tapering off at the extremity of the specimen into healthier cells which are probably a part of the surrounding clear cornea. The basal cells in one part of the section are approaching horny change, while in others they shade off into the partially homogeneous stroma. The cells of the stroma are degenerated, cloudy, the fibers in some parts have completely coalesced and in this region take a dull bluish stain like nuclear degeneration (hyaline degeneration). Bowman's membrane is absent in places; in others it is broken up and vacuolated. These findings correspond closely to those of Fuchs and Paderstein. The patient had a high-pitched apical note but there were no evidences of tuberculosis.

DR. O. WILKINSON, Washington, D. C.: I reported a case several years ago in an elderly captain in the army aged about 70. He had been a hard drinker all his life, but there was no history of syphilis or tuberculosis. The opacity in the center of the cornea was highly nodular, while toward the periphery it was not so pronounced. The left eye, which was first affected, practically only had vision to count fingers. In the right eye, more recently involved, there was a typical central nodular opacity about the size of the ordinary pupil, but with dilated pupil he had fairly good vision. No histopathologic examination was made and he declined any form of operation. I suggested iridectomy for the benefit of vision, but that also was declined.

OSTEOMYELITIS OF THE LOWER JAW *

H. H. GERMAIN, M.D.
BOSTON

That true osteomyelitis of the mandible is an infrequent condition is generally conceded. Considering the opportunities offered for infection in this bone, it seems strange that the disease is not more commonly observed.

Many authors have remarked that the lower jaw is closely allied in structure to the long bones. This is partly true for the body, but not at all for the rami. The body differs from the long tubular bones in that teeth germs are present in childhood, while in the adult alveoli exist for the teeth. The rami resemble the flat bones, since their structure is denser and the marrow is of the spongy or diploetic variety. After the teeth have been lost and the alveolar process absorbed the body also assumes the character of the flat bone. In the jaw of the adult containing teeth the presence of large open marrow spaces together with the inferior dental canal favors the spreading of infection in the body of the bone. It appears, in fact, as has been emphasized by Dependorf,[1] that the canalis mandibularis possesses the same characteristics pathologically as the medullary cavity of the long bones. Infection travels along this canal with the greatest ease, while the surrounding medullary spaces act as reservoirs for pus. Hence in the body of the jaw the process is often a diffuse rapidly spreading disease. The above conditions do not obtain for the rami, and here we should expect the disease to be more localized. Kaleibe[2] and Dependorf,[1] who have investigated this condition, state that this is true and that small foci of suppuration are most often found in this portion of the bone in hematogenous infection.

ETIOLOGY

Having the above anatomic conditions in mind, our next task is to review the etiology of the disease. That the infectious agent finds entrance into the bony substance by way of the teeth goes without saying. Probably eight-tenths of all cases arise in this way. Infections from gangrenous pulps or from abscessed teeth are the most common (see Cases 1, 2 and 3). Impacted third molars also furnish a fair number of cases if one can judge from the number reported. Perthes[3] lays great stress on this latter cause. Pyorrhea alveolaris, noma and gangrenous stomatitis furnish occasional cases (Case 4).

Traumata without fracture may act as predisposing factors, as they produce extravasations and disturbances of circulation which furnish an opportunity for the carriers of infection to settle at the point of injury. Trauma resulting in fracture frequently furnishes a direct path for infection from the oral cavity or outer skin, since the majority of these fractures are compounds. Cases 5 and 6 are examples of fractures compound into the mouth, while Case 9 opened into the external auditory canal.

Excluding infection from the mouth or outer skin, the remaining cases are the result of hematogenous in-

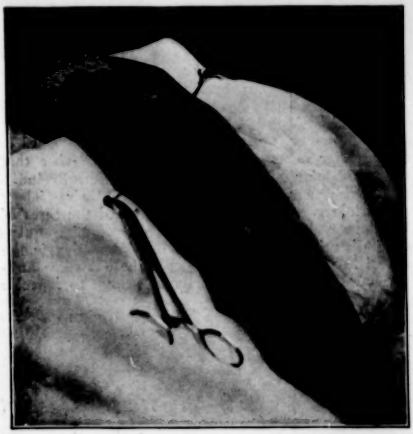

Fig. 1.—Completed operation, showing facial wall of lower jaw removed.

fection. These may follow acute infectious diseases, as scarlet fever and typhoid, or may accompany a septicemia from any cause. Hematogenous osteomyelitis is the only example of pure infection, usually of *Staphylococcus aureus* or streptococcus, which we have in the mandible. This refers, of course, to the condition before communication with the mouth is established. All others are necessarily mixed infection from contamination with mouth bacteria. It is probable that long exposure to cold and dampness is a predisposing factor to this disease; the same may be said of metallic poisons.

Previous to 1881 so-called idiopathic osteomyelitis was mentioned by Rosenbach[4] and Lannelongue,[5] but in that year Kaleibe pointed out and discussed in detail acute infectious osteomyelitis, recognizing the true nature of the disease.

SYMPTOMS AND COURSE

The sudden spontaneous appearance of gnawing pain is a phenomenon which is well known in all cases of

* Read in the Section on Stomatology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June, 1909.

1. Dependorf: Volkmann's Sammlung klinischer Vorträge, 1906, No. 440.
2. Kaleibe: Inaug Diss., Halle, 1881.
3. Perthes: Verletzungen und Krankheiten der Kiefer, 1907.
4. Rosenbach: Deutsch. Ztschr. f. Chir., x, 492.
5. Lannelongue: Bull. et mém. Soc. de chir. de Paris, viii, 263.

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osteomyelitis, regardless of situation. This is usually followed by more or less swelling of soft parts accompanied by fever, and after a time abscesses form and point into the mouth or externally through the cheek or outer skin. With the evacuation of pus temporary relief from pain is observed, but with the progress of the disease more abscesses form with recurrence of symptoms. If the process is diffuse the periosteum is stripped from the bone and the teeth loosen or are extracted to promote drainage of pus. Sooner or later part of the bone dies, and with the casting off of the sequestrum the process usually stops. Not infrequently a different course is seen; the suppuration and swelling are reduced and the disease becomes localized; the jaw thickens and the soft parts become dense and indurated. This localized form occurs most frequently in the ramus of the jaw in hematogenous cases, but it may occur in the body, provided good drainage is established.

The diffuse form is, as a rule, very acute, impairing the general health rapidily by septic absorption and also by the fact that the trismus which is present makes it impossible to masticate and swallow food. These patients can open the mouth a quarter of an inch or less, a condition which makes speech, deglutition and mastication difficult or impossible. It often happens that a large amount of pus is swallowed from discharging sinuses in the mouth. How much effect this has on the general condition is hard to estimate, but no one will deny that the circumstance is unfavorable to good digestion.

Fig. 2.—From photograph of Patient 3; note shortening of lower jaw.

Exactly what controls the size of the sequestrum in an untreated patient is impossible to say accurately. That a total necrosis does not frequently occur seems to be due to an inherent tendency which the marrow possesses to wall off the disease by the formation of dense bone from the endosteum. We have seen that anatomically and pathologically the long bones and the lower jaw are very similar, and it is to be noted that there is a third analogy, i. e., the uniformity in the conduct of the periosteum after loss of parts of the cortical bone. If diffuse necrosis occurs before complete development the longitudinal growth is, of course, much disturbed, but it is the rule that the diametrical growth will go on and new bone be formed provided the periosteum remains intact. The time required for the formation of a loose sequestrum varies in individual cases from twelve to twenty weeks, at the end of which time a fairly firm involucrum, or shell of periosteal bone, is formed. For some time the involucrum is soft and the muscles of the face and jaw produce a certain amount of deformity by shortening the newly formed mandible if the sequestrum includes the entire diameter of the jaw. As a result of this shortening there is malocclusion of greater or less degree as is seen in Case 3. As a rule it may be stated that the body and ramus will be reproduced, but the alveolar process will not be restored after destruction.

It has been noted that in practically all cases pus finds an outlet on the facial side of the mandible either in the mouth or externally. It is also true that part of the facial wall often becomes necrotic and is cast off as a sequestrum, while the labial side is rarely affected in cases of partial necrosis. The exact reason why the disease selects preferentially the facial side is not perfectly clear, but the large size of the marrow spaces below and to the outer side of the inferior dental canal offers the most likely explanation, since the line of least resistance is in this direction, i. e., toward the facial wall.

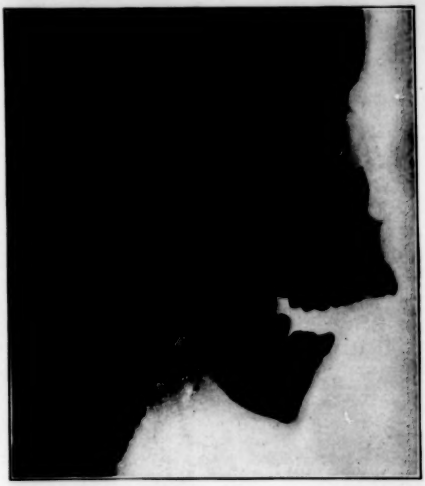

Fig. 3.—From *x*-ray of Patient 3; shortening of lower jaw apparent here also.

As has been observed, the symptoms in an acute case may subside, sinuses form and the disease take a subacute or chronic course. In this event it is usually found that there is a sequestrum present which must be removed. In the jaw there is also a possibility that there may be a dead tooth which can give the case the appearance of a chronic osteomyelitis. Cases of this kind are frequently seen and a number have been reported in which the external opening of the sinus was at a distance from the original cause in the jaw. The following is an example of one of these cases: Male, age 20, developed spontaneously a small abscess about the center of the anterior border of the right sternomastoid muscle. Abscess was drained, but a sinus persisted which resisted all treatment. Finally a dead second molar was extracted. Immediately blood appeared from the sinus and methyl blue dropped into the cavity left after extraction made its appearance at the external

opening. Similar instances are reported by Perthes. In Case 9 of this series there was a sinus in the external auditory canal which on superficial examination resembled otitis media.

These teeth sinuses are particularly frequent in the region of the chin, where a dead incisor or cuspid may be the offending agent. Extraction of these dead teeth may be insufficient for cure, since a pocket of pus and granulations may be present at the apex of the root. Case 10 in the following series is an example.

DIAGNOSIS

Occasional difficulties in diagnosis will be experienced, but they are fortunately rare. Cases of malignant disease with secondary infection are stumbling-blocks which occur now and then. Syphilis and actinomycosis may, of course, confuse. Suppurating dentigerous cysts have been seen often enough to make one consider the possibility. Phosphorus necrosis is extremely rare at the present time. In all of the above conditions, except syphilis, the treatment is surgical and at operation there is rarely any difficulty as to the best course to pursue.

The most valuable information may be obtained by the *x*-ray in cases in which the disease is localized, in which there is a definite sequestrum or in which fracture is a starting-point of the disease. In Cases 10 and 11 foci of suppuration were located with accuracy. In Case 6 the *x*-ray showed a fracture which was the starting point of the infection. In Case 3 a definite sequestrum was found to be present. Good *x*-rays are difficult to obtain of the condyle and upper part of the ramus, but when obtained may be of the greatest aid.

A careful study of the plates may rule out sarcoma and syphilis in certain doubtful cases, but at times both cancer or sarcoma accompanied by bone destruction are difficult to differentiate from osteomyelitis by any known means except the microscope.

TREATMENT

In acute cases affecting the body of the mandible the general rule for treatment should be to remove the facial wall of the lower jaw through an external incision, exposing the inferior dental canal (Fig. 1). In this way all large marrow spaces are opened, the best possible drainage obtained, the firm inner wall is left which keeps the jaw in shape and an opportunity is given to retain the teeth. A good example of the result of this procedure is seen in Case 6, in which the disease was checked and all of the teeth retained. That this method is far superior to incisions in the mouth is obvious and needs no discussion. The gravity of the disease demands radical treatment and leaves us little choice as to whether scars should be left or not.

Subacute and chronic cases are a law unto themselves and no definite method of treatment can be laid down for their relief. In general we may say that the treatment of each case is a hunt for diseased teeth, pockets of pus and sequestra. Sequestra representing the entire thickness of the jaw should be left until a firm involucrum is formed in order to minimize deformity. These cases need careful watching, as acute exacerbations occur frequently and are troublesome and dangerous.

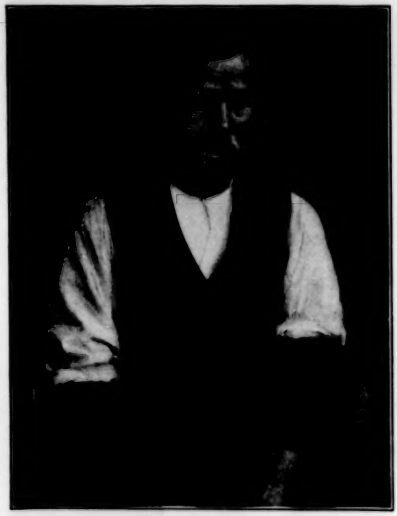

Fig. 4.—From photograph of Patient 6, front view.

Fig. 5.—From photograph of Patient 6, side view.

Trismus is frequently an annoying feature and rectal or nasal feeding may be necessary. Hot applications externally may give some relief from this condition, which is usually a combination of muscular spasm and inflammatory edema.

Lymphadenitis and angina Ludovici may occur at any time. The latter demands immediate surgical intervention.

DEFORMITY

After loss of large portions of the jaw, as in Case 3, a certain amount of deformity results with shortening

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of the body on the affected side. Certain plastic operations have been devised to relieve this condition and it seems probable that bone might be implanted successfully in order to overcome the difficulty. Up to date I have been unable to find a patient who was willing to undergo the ordeal after recovering from an acute process in the jaw.

Fig. 6.—From *x*-ray of Patient 6; note fracture.

SUMMARY OF CASES

CASE 1.—A man, aged 41, entered hospital May 5, 1905; no history of injury. Illness had begun two weeks previously with pain and swelling in cheek; now showed indurated swelling of lower jaw to the left of the median line the size of half an orange. Operation was performed; chin incised and

Fig. 7.—From *x*-ray of Patient 9; note absence of condyle and upper part of ramus.

bone curetted. Patient returned to hospital Oct. 3, 1905; had several sinuses which had never healed. Examination showed two sinuses leading to bone near median line. Incision from one angle of the jaw to the other showed the whole jaw to be necrotic and large amount of bone was removed. Patient returned to hospital again a year later when more dead bone was removed from the left side of the jaw. Since then he has been well.

CASE 2.—A man, aged 56, for ten weeks had pain in lower jaw following extraction of a molar tooth, with trismus, painful deglutition and constant pain which was worse at night; he had lost thirty pounds in ten weeks. At operation the sequestrum was removed from left side of jaw which consisted of alveolar process and part of body. Uneventful recovery.

Fig. 8.—From photograph of Patient 10; note swelling on right of lower jaw.

CASE 3.—A girl, aged 9, five months previous to examination had had abscessed molar removed without relief from pain; later had all of teeth removed on same side without relief. The jaw became swollen and tender and was lanced several times. Examination showed whole face of affected side much swollen with external sinus at angle of the jaw (Fig. 2). *X*-ray showed large sequestrum (Fig. 3). Operation was performed and sequestrum consisting of large part of the body and all the ramus on right side removed; fairly firm involucrum present.

Fig. 9.—From *x*-ray of Patient 10; note thickening of periosteum.

CASE 4.—A girl, aged 3, had lost all teeth of lower jaw with alveolar process during an attack of noma. Lower lip was adherent to jaw with mouth about three-quarters of an inch in diameter.

CASE 5.—A boy, aged 7, whose lower jaw had been fractured during extraction of a tooth fourteen months previous to the time he came under observation, after this had an abscess under the jaw which was opened several times. At operation sequestrum was removed from left half of body of lower jaw. Recovery was uneventful.

CASE 6.—A man, aged 50, received blow on chin Feb. 24, 1809; twenty-four hours later he had acute pain with trismus, difficulty in swallowing and in speech. Examination showed diffuse swelling (Figs. 4 and 5); abscess was opened three days afterward. *X*-ray showed a fracture of the lower jaw through the last molar (Fig. 6). Six weeks later, owing to persistent pain and swelling, the facial wall of lower jaw was removed with good recovery.

CASE 7.—A boy, aged 19, six years before operation was kicked in the chin, following which an abscess developed and

Fig. 10.—From photograph of Patient 11; sinus at angle of jaw.

was opened; sinus was persistent. At operation sequestrum was removed from under incisor teeth; recovery was uneventful.

CASE 8.—A girl, aged 11, two and a half years before operation was struck in the chin by a blow of the fist. Following this an abscess developed, which was opened, leaving a persistent sinus. At operation the sinus led into a cavity under the first molar, into which the root projected. Tooth was extracted and cavity curetted; recovery was uneventful.

CASE 9.—A man, aged 42, was struck in the chin by a limb of a tree three months before examination; he was rendered unconscious and awoke in hospital. At that time diffuse swelling of left side of face with facial paralysis and bleeding from the left ear were present; the patient was in hospital six weeks. He now sought aid on account of discharging ear with pain in region of ramus of jaw on the same side. Examination showed sinus leading forward from cartilaginous canal to region of glenoid fossa. At operation necrotic condyle was found broken off and lying in zygomatic fossa (Fig. 7). Recovery uneventful.

CASE 10.—A boy, aged 13, had had abscessed bicuspid removed six weeks previously. The mucous membrane healed, but persistent swelling of the whole lower jaw and cheek remained (Fig. 8). This swelling varied and at times partly closed the right eye. *X*-ray showed thickening of the periosteum with increased density of the bone (Fig. 9). At operation a cavity, the size of a cherry, containing pus and granulations was found below the bicuspid. In this case there was no sinus. Uneventful recovery.

CASE 11.—A boy, aged 20, for ten months had had a discharging sinus which appeared spontaneously after an acute swelling in the region of the angle of the jaw (Fig. 10). *X*-ray showed area of dense bone in the ramus suggesting a sequestrum (Fig. 11). At operation a small bone abscess was found in lower part of ramus.

CASE 12.—A woman, aged 29, a few weeks before operation had the lower right bicuspid extracted on account of pain;

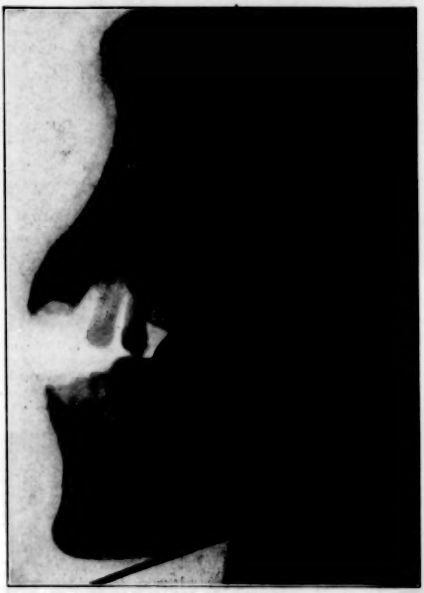

Fig. 11.—From *x*-ray of Patient 11; note focus in ramus.

six weeks before examination had three lower molar teeth extracted for same reason with no relief. Two weeks before examination incisor teeth were removed without relief. Right side of jaw began to swell five months previously; at times the patient had trismus and difficulty in swallowing. Examination showed lower jaw on right swollen and tender; remaining incisor teeth loose. At operation lower incisors were removed and sequestrum consisting of part of body removed through the mouth. One month later another piece of necrotic bone was removed from jaw near the median line.

In closing I desire to thank Drs. Munro and Bottomly for the use of the clinic at the Carney Hospital and opportunity furnished for the study of their cases.

416 Marlborough Street.

ABSTRACT OF DISCUSSION

DR. EUGENE S. TALBOT, Chicago: Few physicians and surgeons are able to differentiate conditions due to diseased pulps, death of pulp with alveolar abscess and osteomyelitis due to

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other causes. There is not a stomatologist who, in his medical life, has not met many surgeons who know nothing of the subject. I could cite 15 or 20 cases in which surgeons have operated on jaws for simple alveolar abscess. The essayist, from his experience, can discriminate between these conditions, which is important in treatment. Patients with osteomyelitis due to dead pulps can be sent to the stomatologist and successfully treated, thus avoiding unnecessary mutilation.

DR. GEORGE V. I. BROWN, Milwaukee: Every point of this paper has been proved by slides. The changes occurring in the bone structure in degeneration and regeneration, and the cases illustrated are exceedingly interesting. I was called the other day to see a little boy in Nashvillle with congenital ankylosis, his jaw was very much drawn to one side, even more than the one shown by the essayist. In another case, a little girl of six with an ankylosed mandible, I operated and gave relief and she can now open her mouth; but I do not really know what caused the ankylosis in either of these cases. I would be glad to have the doctor tell us more of his conclusions, because his radiograph pictures are much clearer than any I have been able to secure.

DR. STEWART L. MCCURDY, Pittsburg, Pa.: In no case, especially in the suppurative stage, will it be possible to tell whether the disease was primarily periostitis or osteomyelitis. In ankylosis we will find a history of suppurative middle-ear disease. The disease extends into the temporo-mandibular joint and results in its destruction and subsequent ankylosis. That is the condition I found in a great many of these cases. The treatment is the removal of the head of the bone.

In the treatment of these cases I have removed half of the bone in one case and nearly two-thirds in another case. In another, the bone was denuded from the angle throughout its extent of the ramus, and I could pass a probe along the entire surfaces of the rami on both sides. Fifty per cent. of these cases are specific, and repair will only take place under potassium iodid treatment. This was followed by readhesion of the periosteum to the bone and recovery under specific medication.

DR. H. H. GERMAIN, Boston: This man who had a fracture of the condyle had a double fracture of the lower jaw. The second one just below the region of the condyle was not discovered. The first fracture was treated, and he developed an apparent suppurative condition of the middle-ear. He had never had any middle-ear disease. This led me to believe that it was a condition following the fracture. I passed a probe down to the sinus anteriorly and felt sure that if I followed the sinus I would go down to the condyle. The condyle was found broken off and necrotic and was removed. He got a very good jaw, considering the fact that he had been suffering for four months. I do not think it is a fair statement that 50 per cent. of cases of osteomyletis are due to syphilis. Very much less than this, if any, is more nearly true.

THE WASSERMANN REACTION IN ITS RELATION TO DISEASES OF THE CENTRAL NERVOUS SYSTEM *

B. SACHS, M.D.
NEW YORK

Neurologists will appreciate the importance of a method which will enable them to state positively whether or not a suspicion of syphilis is justified, or whether every thought of syphilitic disease may be eliminated from the consideration of a given case. Just such service as this the complement-fixation test of Wassermann has promised to render. It seemed well worth while to become thoroughly conversant with the method, the details of which will be described by others, and during a period of very nearly one year to submit to this test as many patients as possible suffering from nervous disease, so as to determine whether or not it would be of service in the diagnosis and treatment of nervous and mental disorders. Shortly after the publication of the investigations of Wassermann, Plaut, Bruck, Neisser, Georg Meier, Porges, Taylor, Citron and others, the inference was drawn that the Wassermann reaction would be of great service in the diagnosis of locomotor ataxia and general paresis—the two diseases which have long since been held to be due to preceding syphilitic infection. Dr. Nonne,[1] of Hamburg, whom we are fortunate enough to have with us to-day, was among the first to make the attempt to determine the general value of the Wassermann reaction in neurologic practice. In this country Drs. Noguchi, Castelli, Gay, Butler, Swift, and Fox have taken up the Wassermann test. I have felt from the very beginning that, while it might be desirable to have further corroborative evidence in tabes dorsalis and dementia paralytica, such corroborative evidence is not often needed and that it would be much more important, as my own hospital experience has taught me, to possess a test which would help to establish the differential diagnosis between a number of other conditions. It seemed much more important, for instance, to be able to differentiate between disseminated sclerosis and cerebrospinal syphilis, between a central gliosis or a specific central myelitis; to decide whether the symptoms of intracranial pressure were due to malignant neoplasm or to a gummatous meningitis; and it was for the purpose of determining the value of the Wassermann test in this larger group of cases that liberal use has been made of the reaction in cases coming under my notice in my hospital[2] as well as in private practice.

First, a few words as to the reaction. It has shared the fate of all new diagnostic methods in receiving either excessive praise or excessive condemnation. It is only by prolonged experience that we can arrive at the exact truth. The test is cumbersome, is not altogether easy to acquire (laboratory practice of a few months is demanded), and the performance of it calls for an unusual amount of patience and of time on the part of the investigator. It will, of course, be far easier to carry out the test in an established laboratory, but it is not altogether beyond the capacity of a private laboratory such as I have been able to arrange, in association with Dr. Castelli, to whose assistance and cooperation I am deeply indebted. The chief defect of the test is that it is altogether a relative one and that the question of the inhibition of hemolysis can be determined only by a comparison with control tubes in which the syphilitic extract or the specific serum is wanting. There are so many possibilities of error in the performance of the test that credit can be given to the results only if those working by it are known to be thoroughly conscientious and capable. It is entirely natural that attempts have already been made to modify the Wassermann technic so as to place the reaction within easy reach of every practitioner. Among those who have made the laudable attempt to simplify the original reaction has been Noguchi, and you will no doubt hear from him to-day to what extent we may substitute his modification for the original Wassermann method. It is very gratifying, however, to be able to state that in a series of forty-five cases examined by Dr. Castelli and myself, according to the original Wassermann method, and by Dr. Noguchi ac-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Deutsch. Ztschr. f. Nervenh., 1908, xxxvi; Syphilis des Nervensystems, Ed. 2.

2. I am indebted to Dr. Gregory of Bellevue Hospital, and to the members of the house-staff at Mt. Sinai Hospital, Drs. Sophian, Bass and Muncker, for much amiable assistance.

cording to his recent modification, the reactions have tallied in all but four cases. Such discrepancies as have occurred will no doubt be accounted for by greater perfection in the technic of both methods. Noguchi's method appears to be unusually sensitive, and we trust that he will be able to satisfy all of us that a positive Noguchi reaction means active lues, as I am fully persuaded a positive Wassermann reaction does.

I must leave the determination of methods and the description of their imperfections, if there be such, to others. I am concerned in this paper with the relation of the Wassermann reaction to diseases of the central nervous system, and, in order to avoid criticism as to the method employed, Dr. Castelli and myself have adhered closely to the technic of the Wassermann school, as we acquired it in Berlin, and have not deviated from the original method in any particular, except that we have substituted the alcoholic extract of the syphilitic fetal liver for the aqueous extract. This is supposed by some to make the reaction less sensitive. Wassermann himself was opposed to the introduction of the alcoholic extract for a time, but this point, I believe, has now been yielded by him and his followers. At all events, using the alcoholic extract has given us most satisfactory results, as was proved by a large series of tests in which all precautions regarding the necessary controls were employed. It is well known, no doubt, by the majority of those present, that the theory on which the reaction was founded has received rather a serious blow, inasmuch as the inhibition of hemolysis was obtained not only when syphilitic liver extract was used, but also when the extract of normal liver was employed and when other lipoid substances were used.[3] Whatever the explanation of this may prove to be, the fact remains that in an unusually high percentage of cases of syphilitic and parasyphilitic diseases the blood serum, if examined according to Wassermann's directions, gives a very definite inhibition of hemolysis, whereas complete hemolysis ensues in the serum taken from patients who are not afflicted with any syphilitic taint.

The conditions of practice and even of my hospital service have made it necessary to restrict my examinations largely to the examination of the blood serum. No doubt Nonne is correct in insisting that the full truth can be obtained only after a consideration of the cellular elements in the spinal fluid, the globulin content, and the specific reaction of blood and serum and of the spinal fluid. In a small number of the cases (15) the spinal fluid has been examined, and in one case of a child, when it was impossible to obtain sufficient blood for the Wassermann test, a blister was drawn—following the suggestion of Dr. Kaplan to one of my assistants—and serum obtained in this fashion. I wish in this communication to give some of the more important results obtained in a series of about 250 cases. In many of these several tests were made.

All investigators are agreed as to the value of a positive Wassermann reaction. If it signifies anything at all, it indicates a more or less active luetic process somewhere in the system. A negative reaction by common consent does not preclude the presence of syphilis and yet a negative reaction, it seems to me, often gives valuable information. In the vast majority of cases in which the negative reaction is obtained, the thought of syphilis may be dismissed. In a large number of others, however, in which a positive reaction has been found present at the beginning of the disease, and in which a negative reaction has been obtained in the course of or after prolonged treatment, it is only fair to assume that the syphilitic virus has been neutralized as a result of the therapeutic measures employed.[4] In this connection it is important to note that a positive Wassermann reaction may often be wanting in spite of the true syphilitic nature of the disease, if intense or prolonged antisyphilitic medication had been employed before the first test was made. As a matter of routine in my hospital practice the rule had been established that neither mercury nor iodids were to be administered to any patient until the Wassermann test had been done. Assuming, then, that a Wassermann reaction may furnish corroborative evidence as to the presence or absence of an active syphilitic virus, let me give in some detail the results obtained in various groups of cases.

I. IN TABES AND GENERAL PARESIS

As I have intimated before, the reaction is hardly needed as corroborative evidence in these two conditions, because in fully 95 per cent. of the cases the diagnosis can be safely made. The chief difficulties have been experienced in the differential diagnosis, in former years, between tabes dorsalis and syphilitic spinal disease simulating tabes, or between general paresis and specific pseudoparesis. But the Wassermann reaction will be expected to be positive in all of these conditions and can, therefore, throw little light on the exact nature of the morbid process. It may be of some value in those cases in which the differential diagnosis has to be made between general paresis and neurasthenia. The preponderance of opinion would seem to favor the idea that if a Wassermann reaction is positive, the disease is necessarily paresis and not neurasthenia. But if we suppose that the neurasthenic individual has had a preceding syphilitic infection, as well he might have, it would not be fair to infer general paresis merely because the patient gives a positive reaction. And this leads me to the first opinion which I wish to express, as a result of my experience, and that is that a positive Wassermann reaction implies an active luetic process somewhere in the system. Any inference beyond this point seems here hardly to be justifiable. I can in this way account for the discrepancy between the figures published abroad regarding tabes and general paresis and those which have been obtained by Dr. Castelli and myself. We have not found a positive reaction to be universally present in general paresis and almost universally present in tabes, as has been published by so many writers abroad. The presence or absence of the reaction, even in tabes and general paresis, depends more or less on the active luetic virus and less on the terminal cortical or spinal cord changes which are responsible for the symptoms of general paresis or of tabes dorsalis. Our own results in tabes and general paresis have been as shown in the accompanying table.

In this series of 28 cases of tabes, 18, or 64.3 per cent., were positive and 10, or 35.7 per cent., were negative. For the purpose of this table I have considered all weak positive cases of the same value as the more positive ones. This percentage is a little lower than that of some of the former investigators, though it is even a little higher than the statistics of Hoehne,

3. Professor Kopp (München med. Wchnschr., May 11, 1909) has endeavored (I think, in vain) to minimize the universal enthusiasm regarding the clinical value of this method. Since writing the above, Neisser has spoken frankly of its tremendous importance.

4. Since writing the above, corroboration of this view has come to me in the article of Hoehne (Berl. klin. Wchnschr., May 10, 1909) entitled: Die Wassermann'sche Reaktion und ihre Beeinflussung durch die Therapie.

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who found a positive reaction in 60 per cent. of 45 cases of tabes, but he has in his list 12 cases of doubtful tabes in which there was a positive reaction in 41.7 per cent. In our list we have had no doubtful cases of tabes, and I take it that in every neurologic clinic there will surely not be 25 per cent. of doubtful cases of tabes dorsalis as there are in this list, which has been issued from a dermatologic and not a neurologic clinic. Wassermann and Plaut found a positive reaction in 70 per cent. of their tabic patients; others claim as high as 90 per cent., and Nonne apparently obtained a positive reaction in 90 per cent. of the blood examinations and 50 per cent. in the examinations of the spinal fluid. Our own figures are, therefore, in general agreement with those who place the percentage somewhere between 65 and 70 per cent. The character of the patients has much to do with the percentages of the reaction. Of the 28 cases of tabes referred to in this paper, 19 were observed in my private practice, and of these at least half were patients who had been under constant observation over a period varying between three and ten years and all of them had received much treatment. Even before the importance of the Wassermann reaction had been disclosed I had been in the habit of subjecting my tabic patients to a course of sublimate injections at least twice a year. This will account for the fact that of the nine negative cases of tabes in my series seven were cases of patients who had been subjected to this line of treatment. It can, therefore, be seen readily enough that if I were to tabulate only hospital cases and those seen for the first time during the past year the percentage of positive reactions would be very much higher. It is also worthy of note that all the female tabic patients, as well as all the female general paretics, gave a positive reaction. A reaction which was positive in a number of tabic patients before treatment was begun gave a negative reaction after a course of several weeks' treatment had been persisted in.

TABLE SHOWING THE RESULTS OF THE WASSERMANN TEST IN TABES AND GENERAL PARESIS

Tabes Dorsalis.	Reaction.	General Paresis.	Reaction.	General Paresis.	Reaction.
2	—	7	+	36	—
3	—	8	+	37	—
4	—	9	+	77	—
17	+	10	+	105	—
18	—	12	+	135	—
24	+	14	+	161	—
27	+	15	+	206	weak
30	—	21	—		
33	—	22	+		
35	+	23	—		
38	+	42	—		
47	+	51	+		
55	+	71	—		
64	—	76	+		
87	+	78	+		
100	+	82	+		
101	—	83	—		
107	+	94	+		
110	+	95	+		
119	—	103	+		
136	+	104	+		
142	+	108	—		
145	+	117	+		
146	+	132	—		
164	+	133	—		
193	+	134	—		
194	+	151	—		
208	—	152	+		
		153	—		
		154	+		
		198*	—		

* Juvenile general paralysis

In spite of these high percentages we can not expect much help from the reaction in those cases of spinal or cerebrospinal lues in which the tabic type predominates, for in both these groups of cases a positive reaction might be obtained and yet no light whatever will be thrown on the spinal character of the morbid changes underlying the symptoms. In every case in which a positive reaction was obtained, specific treatment was pushed with much more energy than would otherwise have been the case.

Among these cases of tabes I wish to single out two for special mention. They have both been under observation for many years, the one during a period of four, the other during a period of ten years at least, and both of these were puzzling for a long period because they presented no other symptom than a dissociation of sensation within the distribution of the fifth nerve, the affection in one case becoming bilateral, in the other remaining unilateral. Both these patients—the one a man of 35, the other of 38 years, the one a merchant and the other a machinist—presented positive reactions. The one patient was observed for years before any other symptoms of tabes were in evidence, but to the dissociated sensation of the trigeminal distribution has now been added a loss of knee-jerks and an ataxic gait, whereas the other still presents no other symptom except a difference in the knee-jerks and some vague and occasional lightning pains. After finding a positive reaction in these two cases, strenuous mercurial treatment was given, always by hypodermatic injections, and strangely enough in both these cases the trigeminal symptoms have been distinctly diminished since the hypodermatic injections were begun, and in both the tabic process seems for the present to have come to a standstill.

Of the 31 cases of general paresis, 32.3 per cent. gave a negative reaction and in 67.7 per cent. the reaction was positive. It will be seen that these percentages are almost identical with those obtained in tabes, whereas other observers have recorded higher percentages. The same explanation that I have given in the cases of tabes will hold to a certain degree for general paresis. All of the cases of general paresis were progressive in their symptoms in spite of the mercurial treatment to which the patients had been subjected. Among the list of cases are several that have lasted a period of two years or more, and all of these cases of old standing gave a negative reaction. Another possible explanation for the low percentages of positive reactions in my cases may be the fact that a number of these cases were in the psychopathic ward of Bellevue Hospital, where patients are retained only over a period of four or five days and where the diagnosis often has to be made hastily, so that there is a bare possibility that some of those which have been classed as cases of general paresis might possibly have belonged to the category of doubtful cases. I have placed in a separate series 7 cases which were unquestionably doubtful ones and of these 7, 5 gave a negative reaction and 2 a positive reaction, one of these 2 positive reactions being weak positive. The contrast between these doubtful cases and undoubtedly genuine cases is striking enough to make us appreciate the value of a positive reaction when it is found, but in the case of general paresis again the finding of a positive reaction does not help us materially in making a differential diagnosis between typical general paresis and syphilitic pseudoparesis. A most interesting example of this character was that of a patient (No. 24) who had had tabes for many years and in addition to these symptoms of tabes had passed through attacks which would ordinarily be classified as manic or manic-depressive attacks, with occasional speech disturbances that were a little like those of general paresis and with occasional delusions of an expansive character. The diagnosis of general paresis was made offhand by a num-

ber of men who had seen the patient and his early death has been freely predicted in each one of the attacks; but, confident of the luetic character of his symptoms and being willing to make a diagnosis of pseudoparesis only and not of the genuine kind, I had predicted his recovery, and he is at present enjoying excellent health, his tabic symptoms being stationary and his mental symptoms for the present being absolutely in abeyance. In this patient the blood examination taken early in January of this year was most positive, and very soon thereafter a violent outbreak occurred. We have not been able to take another reaction since, but the improvement set in as soon as he had been brought under the influence of mercurial treatment. Incidentally it is well to note that there are psychic conditions in tabic patients, and surely in those who have had constitutional syphilis which need not necessarily take the form of general paresis, and this seems to me to be a fact which is often overlooked.

The Wassermann reaction in tabes and in general paresis is of special use only in so far as it tends to corroborate the theory of the specific origin of the two diseases, and also in so far as it gives one good reason to adopt rigid antisyphilitic measures until the character of the reaction has been altered as a result of treatment.

But to pass from tabes and general paresis to other forms of central nervous disease, I will detail briefly some of the experiences of the past year. And here I will refer first to cases in which the diagnosis between disseminated sclerosis and multiple cerebrospinal syphilis was difficult to establish and to another in which it was a question whether the patient was suffering from spinal lues or from amyotrophic lateral sclerosis.

MULTIPLE SCLEROSIS AND MULTIPLE CEREBROSPINAL SYPHILIS

Two patients, both women, one in private practice and the other at the hospital, were under my care. One patient (No. 49) was a woman, 28 years of age, who had been under my treatment a few years ago for a spastic paraplegia with very slight disturbance of the bladder and rectum and slight sensory disturbances involving both lower extremities. There was no involvement of the cranial nerves, her speech was occasionally a little halting, and on extreme moving of the eyes there was a slight nystagmus. There was also a slight ataxic tremor of the upper extremities which might have been interpreted as an intention tremor. At that time a differential diagnosis between multiple sclerosis and multiple cerebrospinal syphilis was not definitely made, although I was inclined to adhere to the suspicion of syphilis in spite of the pupils, which were entirely normal in their reactions. After treatment for a number of months by mercurials chiefly, and some iodids, the patient made a good recovery, and about one year after her dismissal from treatment gave birth to a normal child. In December, 1908, she visited me again complaining of a gradually developing stiffness of the legs; she was able, however, to walk to and from my office and otherwise presented no symptoms. The Wassermann test was made and the reaction was a very positive one. A week later the lower extremities were not only stiff, but distinctly weakened, and from this time on for the following four weeks she experienced great difficulty in getting around. It was not practicable to have her return regularly for injections; she was given large doses of mercury by inunction. After two months distinct improvement set in, she was able to get about again, both the rigidity and the paralysis disappearing. The only thing that was left was a slight unsteadiness in her walk and easy fatigue on exertion. She also complained of numbness in the left hand.

While the recurrence of attacks would have favored the diagnosis of spinal syphilis, it is well known that even in multiple sclerosis such remissions occur, and in this case a positive Wassermann reaction was a great aid in diagnosis.

The other patient (No. 29) is the wife of a physician, whom I have had under treatment off and on for a number of years. She has at various times had transitory attacks of paraplegia, with marked scanning speech and with great increase of the deep reflexes and marked rigidities. The husband is entirely ignorant of any specific infection and was much more inclined to the belief of a disseminated sclerosis than of a specific spinal disease. This patient had been sent to the hospital last year when she had an attack of spastic paraplegia, and after twenty-three injections there was marked improvement, so that she had practically been feeling well during the greater period of the winter. On December 3 of last year, at a time when she had ceased all treatment for a number of months, the Wassermann test was made and the reaction was found to be positive. Following this she was subjected to another course of injections and remained in a tolerable state of health until about a month ago, when she again suddenly became paraplegic, with considerable pains radiating down the limbs, and had again to be sent to the hospital for another course of treatment. Of the specific character of her trouble there can be no doubt.

As a companion-piece to these two patients I might mention another, a young woman, 25 years of age (No. 41), who had while in the hospital a transitory attack of hemiplegia, who presents marked nystagmus, slow, hardly scanning speech, ataxia of the upper extremities, and occasional weakness of the lower extremities, although never so marked that she is compelled to remain in bed or on a chair; but her disease, which I have been able to follow for at least six years, has been characterized by most marked remissions, and, inasmuch as she was a young married woman who had never given birth to children, the differential diagnosis between multiple sclerosis and multiple syphilis was not an easy one to establish. In her case the several tests which were made at varying periods have been negative, and I feel certain that the case will prove to be one of multiple sclerosis and not of syphilis.

The difficulties in diagnosis were quickly cleared up in a hospital case of a woman about 40 years of age who presented marked atrophy of the thenar and hypothenar muscles of both hands, with increase of the reflexes both in the upper and lower extremities, and with some slight involvement of the sphincters and a complete spastic paraplegia of the lower extremities. The disease came on much more suddenly than we are accustomed to see it come on in amyotrophic lateral sclerosis, so that there was some doubt as to whether the case was one of this character or whether it might possibly be a form of cerebrospinal lues. In this case the blood reaction was found positive and the cerebrospinal fluid sent to Dr. Noguchi for examination was reported by him very strongly positive. On the strength of these findings the patient was subjected to marked antiluetic treatment, but she became completely paraplegic, lost control over her bladder and rectum, developed a huge bed-sore and died of the disease within a few weeks. The autopsy revealed a most

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marked cerebrospinal meningomyelitis specifica. As this was the first one of my series of cases to be examined, it can readily be seen that I was much impressed with the Wassermann test as an aid to diagnosis in doubtful cases.

In addition to these cases, there have been a number of ordinary spastic paraplegias (Nos. 13, 19 and 109). In the first two the reaction was negative and there was no special reason to think that there was any specific element in the case. In the third (No. 109) there were all the ear-marks of syphilitic disease, and an infection years ago was conceded. In this case the blood reaction was positive, and the cerebrospinal fluid also gave a very positive reaction. I make mention of this positive reaction of the cerebrospinal fluid as Nonne and others have failed to get a positive reaction in many of these conditions. Several tests were made of this man; all of them were positive, so that there can hardly be a doubt as to the correctness of the observation. It is well worth adding that in this case lumbar puncture was done at least five times, three times while in the hospital under our own observation, and twice while the patient was at another institution. He experienced so much relief—whether it was subjective or not—from the withdrawal of about 15 c.c. that he asked for repeated lumbar puncture. As no ill effects were observed from this, his wish was granted and he left the hospital very much improved and was ready to resume his work as a motorman.

Let me refer here also to another very remarkable case of cerebrospinal lues (No. 32) that had been under my own care in private practice as well as in the private pavilion in the hospital, with several attacks of hemiplegia and of paraplegia, from each of which the patient—now a man about 33 years of age—had recovered. Last summer this patient was sent to Aix-la-Chapelle and was subjected there to a thorough course of mercurial treatment. He reported to me on October 5, after his return from Aix, when I found him practically well, but for safety's sake continued him on small doses of protiodid of mercury—a drug, by the way, in which my confidence is steadily diminishing. On November 20 of last year he reported at my office, stating that the vision of the right eye appeared blurred. On examination I found a distinct swelling of the nerve and some atrophy. I referred him to Dr. Wiener, who reported that the patient exhibited a distinct specific retinitis and evidences of a retrobulbar neuritis. It was not practicable to give him injections, so he was put on inunctions of mercury. The blood was taken for examination and the reaction was found most positive. After twenty inunctions another test was taken and the reaction was weak positive. After thirty inunctions the reaction was negative and has remained negative since.

There was a further interest in this case, inasmuch as with the improvement in the Wassermann reaction there was also a marked improvement in vision, so that on March 9 I could enter on my records the statement that the patient "reads perfectly with the right eye and all trouble with vision seems to have disappeared." On April 12, however, he developed a weakness in the right leg, reminding him of the condition of the leg during his attack of hemiplegia some years ago. He was at once given another course of treatment, and on May 19 of this year, when he was again seen at my office, he had recovered from the attack of transitory paralysis of the leg, his vision was good, he was able to attend to his work and had practically recovered from this renewed attack of paralysis.

Of all the cases of central syphilitic disease that I have seen this has been the most stubborn, at least of those that showed any tendency to recovery. The Wassermann reaction has been of much aid in the treatment of this patient, and I am so much impressed with its value as an indication of active or inactive lues that I have advised the patient to present himself at least twice a year for a blood examination so as to determine whether or not he needs active antisyphilitic treatment even in the absence of all clinical phenomena.

A case somewhat similar to this (No. 116) was under observation during the winter at the hospital. The patient's chief symptom was a blindness which was suddenly developed, and it was a question whether the blindness was due to a specific disease or possibly to poisoning by wood alcohol. In this case both the blood and the cerebrospinal fluid gave a positive reaction. Under mercurial injections the patient was improved and was finally discharged from the hospital, although his vision had not been completely restored, but he had regained sufficient vision to return to his home. In this case we were well aware that wood alcohol might possibly have caused the condition in a man who had previously been infected with syphilis, but without the positive reaction we would not have had the courage to persist as we did in a prolonged course of mercurial treatment.

IN TUMOR OF THE BRAIN, HEMIPLEGIA AND EPILEPSY

I have no desire to multiply details, but I must refer to the aid rendered by the Wassermann reaction in cases of tumor of the brain or of cerebral conditions in which tumor was suspected. An interesting observation was that on a hospital patient (No. 73) who had had considerable nasal trouble, had been treated by a number of nose specialists in an operative way, and shortly after such a course of treatment developed intense frontal headaches, exquisite tenderness over the frontal bone, slight optic neuritis, without running any considerable fever, except such as might have been accounted for by a slight intercurrent complication. In view of the previous history of nasal trouble and operative interference, it was natural to think of abscess or of a possible intracranial neoplasm or else cerebral lues—a condition which one should never overlook. The patient was under treatment at the time when we were most interested in the Wassermann reaction. The test of blood was taken after he had been in the hospital for a number of weeks, but without specific treatment and a positive reaction was recorded. In view of this—and this was an important matter—every thought of operative interference was abandoned; the man was put on sublimate injections. All his symptoms cleared up and he was discharged, cured, from the hospital after a further stay of about four weeks.

It has become a matter of routine treatment in my service at the hospital to take the Wassermann reaction in all cases of brain tumor before operation is decided on, with a view of eliminating specific cases. I have a record of five such tumor cases in all of which the reactions were negative, and in one of them the reaction of the cerebrospinal fluid was also negative. In a sixth case a positive Wassermann reaction helped us out of a serious diagnostic dilemma. The patient is still in my hospital wards. He is a young man about 25 years of age whose chief symptoms were of a bulbar character; typical bulbar speech, constant drooling from the mouth, rigidity of the neck, intense vertigo, so that the patient had to hold his head inclined to the right, and on any

attempt to move it forcibly to the left suffered from intense vertigo. He also exhibited, on looking to the left, a most marked lateral and vertical nystagmus. There was strong suspicion of a tumor either of the cerebellum or in the vicinity of the medulla oblongata, but the only fact that was not in concurrence with this view was the entire absence of optic neuritis; and yet we have all known of the occurrence of cerebellar tumors and of tumors in the vicinity of the foramen magnum, where this growth would have had to be, which are not attended by optic neuritis. The man's condition was becoming rather desperate; he could be fed only by the stomach-tube and seemed to be in great danger of respiratory paralysis, and as a last resort—although I did not think a specific condition probable—a blood test was made which gave a distinctly positive reaction. In view of its proximity to the cerebellum I did not venture to withdraw spinal fluid. As soon as the positive reaction was made out, sublimate injections were given to the patient, and within a week a most astonishing improvement occurred; the patient began to swallow food, the nystagmus was lessened, the vertigo diminished, and he seems now to be on a fair road to recovery; another case in which the Wassermann reaction has proved to be of incalculable value.

In the hemiplegias much assistance was given by the Wassermann test. We neurologists know how much at sea we often have been regarding the nature of an apoplectic attack, and if the onset was such as to give rise to the suspicion of thrombosis, unless the patient were well advanced in years, we have always had to fall back on the theory of a specific endarteritis. I feel that we can depend on the Wassermann reaction to corroborate such a suspicion or to diminish its probability. In the paper which I read before the Association of American Physicians, together with Dr. Collins, on "The Value of the Wassermann Reaction in Cardiac Disease" I reported the case of a hospital patient whose condition was most puzzling. He had a distinct endocarditis affecting both the aortic and the mitral valves. Shortly before entering the hospital he sustained an attack of hemiplegia which was very slow in its mode of onset, entirely without loss of consciousness, and in which the arm and leg were not simultaneously paralyzed. The onset of this did not at all correspond with the theory of embolism due to heart disease. A Wassermann reaction was positive in this patient, and I inferred from this that, although the patient had heart disease, he also had specific endarteritis, and that his attack of hemiplegia was due to thrombosis and not to embolism; another instance, it seems to me, in which the evidence furnished by the Wassermann reaction may be of great diagnostic value.

The Wassermann reaction has been of the greatest help to me in a number of cases of epilepsy in which syphilis was suspected as the only possible cause. Case 128 was one of hereditary lues with epilepsy in which the reaction was positive; and in one case (No. 89), a young man who had acquired syphilis a number of years ago and who gave a positive reaction, had also developed epileptic attacks, the meaning of which was supposed to be in doubt, but with the positive Wassermann reaction I think we need not hesitate to ascribe these spells to brain syphilis.

I have mentioned the cases in which positive reactions have been of great help, but a negative reaction has often been just as instructive, particularly in the case of tumor of the brain, in cases of headaches, and in conditions of disease of the peripheral arteries, more or less resembling Raynaud's disease and erythromelalgia, in which a negative reaction has led me to believe that the suspicion which I once entertained, that these conditions might be of specific origin, can not be defended.

In view of such experiences as I have recorded, I do not hesitate to speak enthusiastically of the value of the Wassermann reaction in neurologic diagnosis. I am certain that within recent years no aid to diagnosis has been given us which can at all equal it in value and in its importance. It should, however, be interpreted merely as a finding corroborating or disproving the suspicion of syphilis, and I would urge that every neurologist acquaint himself personally with the method so that he may learn to employ it and may help to determine by further investigations what the limitations to its usefulness may be, for limitations will surely be found.

I was soon convinced that the Wassermann test was valuable in determining our therapeutic procedures. As a result of my own experiences I would urge that a positive Wassermann reaction is an indication for antisyphilitic treatment; and as regards diseases of the central nervous system, I mean treatment by mercury and preferably by mercurial injections, I have placed reliance on the soluble salts, but I will not differ from those who have a predilection for the insoluble mercurial salts, or who still pin their faith to the iodids. It may be as well, however, to state my conviction that, while I have seen specific headaches and milder specific conditions improve under the administration of iodids, specific myelitis or any serious specific invasion of the cord or brain has, in my opinion, been benefited only by systematic mercurial treatment. These views, which I have held for some time, are, it seems to me, corroborated in the recent interesting statistics of Hoehne, who shows that calomel and sublimate injections appear to be the most efficient. This writer finds that the Wassermann reaction is changed from postitive to negative more often after the administration of these two mercurial preparations than after other forms of treatment. If we remember in what haphazard and vague way antisyphilitic treatment has been given for years, both in nervous and in other diseases supposed to be of syphilitic origin, we must welcome a method which gives us some sort of rational basis for our therapeutic procedures. I maintain, therefore, that the Wassermann reaction has a positive value not only as an aid to diagnosis, but also as an aid to treatment.

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THE SERODIAGNOSIS OF SYPHILIS *

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It is my essential purpose to present the results of the analysis of 2,406 blood serums by the complement fixation test, using either Wassermann's or my own method of doing the test. Herewith are given six tables, giving in detail the results of the analysis and of a comparative study of 244 cases of known syphilitic or parasyphilitic conditions in which the Wassermann method and mine are contrasted. I shall also point out briefly the main differences between the Wassermann method and my own, referring to the various other modifica-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

tions in passing. For further details consult my article read before the Section on Pathology and Physiology of this Association.

It is important to bear in mind that the main difference between my system and the Wassermann system lies in my use of a known quantity of amboceptor, while in the Wassermann system we meet a difficulty in the fact that human serum may contain anywhere from 0 to 20 units of natural hemolysin (amboceptor) capable of inducing hemolysin of sheep's corpuscles. This introduces an uncertain factor into the interpretation of the results, inasmuch as an excess of anti-sheep amboceptor leads to hemolysis even in the presence of syphilitic antibody. Any system using foreign corpuscles, such as that of Bauer, Hecht, Stern, and Detre, is equally apt to give fallacious results.

Minor differences often of great importance to the individual doing the test are: (1) in my system it is possible to preserve the various reagents, such as antigen, amboceptor, and, if necessary complement, in stable form, dried on filter-paper and then titrated, ready for use; (2) in my system the quantity of blood necessary for the test is very small, only a few drops; inactivation is not necessary and the blood need not be fresh; (3) the case with which certain of the reagents can be procured is a factor; in my system human corpuscles are used, and the patient's own cells can be utilized. In all the other methods it is necessary to have a fresh supply of corpuscles, sheep's, horse's, etc., always on hand; (4) all the other methods require a complete laboratory, while any laboratory worker can do my test with a very small equipment.

Table 1 contains a summary of the results obtained by my method. The percentage of positive reactions in these cases of syphilis, manifest or latent, compares favorably with the results obtained by different investigators using the Wassermann system.

TABLE 1.—THE RESULTS OBTAINED BY NOGUCHI'S METHOD IN SYPHILIS, PARASYPHILIS, HEREDITARY SYPHILIS AND SUSPECTS

	Number of Cases.	+	%	−	+
Primary Syphilis	70	65=	92.8	4	1
Secondary Syphilis	197	190=	96	5	2
Tertiary Syphilis	177	159=	89.9	16	2
Early Latent Syphilis	115	87=	75.6	24	4
Late Latent Syphilis	150	119=	79.3	27	4
Under Prolonged Treatment	39	4=	10.2	32	3
Cerebral Syphilis	5	3=	60	1	1
Tabes	125	85=	68	27	13
General Paralysis	15	13=	86.6	2	0
Hereditary Syphilis	17	17=	100	0	0
Suspected Syphilis	172	60=	34.8	96	16
	1082	802		234	46

TABLE 2.—RESULTS OBTAINED BY NOGUCHI'S METHOD IN CASES IN WHICH SYPHILIS IS AN ETIOLOGIC FACTOR OR CAN NOT BE EXCLUDED AS A POSSIBLE CAUSE OF THE CONDITION

	Number of Cases.	+	−	+
Cirrhosis of Liver	7	5	1	1
Ascitic Fluids	21	11	9	0
Aortic Insufficiency	1	1	0	0
Chronic Arthritis	10	2	6	2
Eye Cases	29	14	15	0
Diabetes	5	1	4	0
Eczema	32	1†	31	0
Scleroderma	4	1‡	3	0
Brain Tumor?	8	4	4	0
Central Gliosis?	2	1	1	0
Hemiplegia	8	3	5	0
Spastic Paraplegia	3	2	0	1
	130	46	81	3

† This serum was sent to me by Dr. Howard Fox, who failed to obtain another specimen from the same case.

‡ This serum was sent to me by Dr. Schuyler Clark, who made a report on the same case elsewhere.

Table 2 is made up of cases in which syphilis could not be excluded as an etiologic factor. In many cases in which the diagnosis clinically was syphilis, a positive reaction was obtained, and *vice versa*. In the one case of eczema a second specimen was not obtainable; and in this case the patient could not be further interrogated to obtain, if possible, a history of lues. The possibility of hereditary syphilis in the one case of scleroderma could not be excluded; the mother gave a weak reaction to the test.

The material for Table 3 was supplied by Dr. Martin Cohen. In every case in which a positive reaction was obtained, with exception of the one case of acromegaly, the clinical diagnosis made by Dr. Cohen was syphilis.

TABLE 3.—RESULTS OBTAINED BY NOGUCHI'S METHOD IN EYE CASES

	Number of Cases.	+	−	+
Keratitis Interstitialis	12	8	4	0
Iritis (acute)	6	4	2	0
Scleritis	1	0	1	0
Paralysis Exter. Rectus	1	0	1	0
Neuritis Optic	1	1	0	0
Choroiditis Exudative	1	0	1	0
Atrophy Optic	5	0	5	0
Acromegaly with Ocular Symptoms	2	1	1	0
	29	14	15	0

In Table 4 I have reported a number of miscellaneous diseases in which syphilis was probably not a factor. Among these were certain cases of leprosy, malignant neoplasms, tuberculosis, scarlet fever and other exanthemata, in all which diseases positive reactions have been occasionally reported by those using the Wassermann method. It can not be denied that complement is fixed in a large percentage of cases of leprosy; the reasons for this result are as yet unknown. With carcinoma and scarlet fever a positive reaction is rarely obtained. The results here agree closely with those obtained by the Wassermann method.

TABLE 4.—RESULTS OBTAINED BY NOGUCHI'S METHOD IN CASES IN WHICH SYPHILIS CAN BE EXCLUDED WITH A FAIR DEGREE OF CERTAINTY

	Number of Cases.	+	−	+
Leprosy	10	7(!)	2	1
Carcinoma	51	1	48	2
Sarcoma	3	0	3	0
Adenosarcoma	1	0	1	0
Endothelioma	1	1	0	0
Scarlatina	63	1	60	2
Varicella	1	0	1	0
Measles	2	0	2	0
Tuberculosis	52	0	52	0
Lupus	2	0	2	0
Raynaud's Disease	2	0	2	0
Banti's Disease	1	1	0	0
Hodgkin's Disease	2	0	2	0
Muscular Dystrophy	5	1	3	1
Neurasthenia	2	0	1	1
Dementia Præcox	5	0	5	0
Various Skin Diseases	58	0	57	1
Miscellaneous	74	0	74	0
	335	12	315	8

Table 5 presents a study of 615 cases by the regular Wassermann method; and the results obtained agree closely with those of other investigators.

TABLE 5.—RESULTS OBTAINED BY THE WASSERMANN METHOD

	Number of Cases.	+	%	−	+
Primary Syphilis	33	22=	66.6	8	3
Secondary Syphilis	120	104=	86.6	14	2
Tertiary Syphilis	91	66=	72.5	22	3
Early Latent Syphilis	81	39=	48.1	41	1
Late Latent Syphilis	74	33=	44.7	37	4
Hereditary Syphilis	4	4=	100	0	0
Cerebrospinal Syphilis	2	1=	50	1	0
Tabes	22	9=	40.9	13	0
Cerebral Endarteritis	2	2=	100	0	0
Suspected Syphilis	80	33=	41.2	39	8
Other Diseases	106	4*		102	0
	615	317		277	21

* 1 Carcinoma, 1 Epithelioma, 1 Malaria, 1 Leprosy.

In Table 6 I present the results of the simultaneous examination of 244 cases of known syphilitic conditions by my own and by the Wassermann system. In my opin-

ion, they prove conclusively the greater delicacy of my test over the other method in cases of syphilis. This greater percentage of positive reactions is not due to an undue sensitiveness of the method employed by me, but to the elimination in my system of the error introduced by using too great a quantity of amboceptor, as pointed out above.

TABLE 6.—Comparison of the Results

	No. of Cases.	Wassermann Method. +	%	−	Noguchi's Method. +	%	−
Primary Syphilis	23	17=73.9		6	20=86.9		3
Secondary Syphilis	79	69=87.3		10	76=96.2		3
Tertiary Syphilis	65	52=80		13	57=87.6		8
Early Latent Syphilis	27	13=48		14	18=66.6		9
Late Latent Syphilis	32	24=75		8	27=84.3		5
Tabes	18	8=44		10	13=72.2		5
	244	183		61	211		33

In conjunction with Dr. J. W. Moore, of the Manhattan State Hospital for the Insane, Ward's Island, New York, I have examined the cerebrospinal fluids of 200 cases of parasyphilitic and other nervous conditions; the results will appear in the July number of the *Journal of Experimental Medicine*.

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THE WASSERMANN REACTION *

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The difference between a normal and a specific serum in the Wassermann reaction is only quantitative, the reaction being provoked by the presence in the blood serum and cerebrospinal fluid of colloidal elements of histogenic and not bacteriogenic origin.

The researches made on the syphilitic serums have proved that the substances to which the syphilitic serums owe their specific property are equally soluble in diluted alcohol. In fact, the alcoholic extracts of the serums contain salts and lipoid substances which either alone or in presence of the extract of liver prevent hemolysis and give a positive reaction. That would prove that the Wassermann reaction is due to the action of lipoid and salts contained in the liver extract on the lipoid and salts contained in the syphilitic serums.

I suppose that if it were possible to make the Wassermann reaction so sensitive that we could thereby detect any trace of colloidal substance contained in the serums to be examined we would have positive reactions in many cases besides the specific ones. When the blood crasis has undergone temporary or permanent modifications, the main necessity, from the clinical standpoint, in the performance of the reaction is to be able to detect the point, above which every positive reaction can be considered specific. To perform, interpret and understand the Wassermann reaction, we must not forget the laws regulating the fixation of complement. The most important is this: If a serum is used containing albuminoid substances in excess, we can have a mechanical fixation of complement. So in the practice of the Wassermann reaction we must remain within the limit of doses in which we are sure no false complement fixation will occur, and in the meantime remain within the dose limit of the hemolytic action, because if we add to the mixture antigen-antibody too strong a dose of complement the complement will not be entirely fixed and the hemolysis of the red sheep corpuscles will take place also if the mixture antigen-antibody has fixed the proper quantity of complement.

Professor Wassermann, in establishing the routine to follow in his method, has been guided entirely by the above-mentioned principle, and his method is of mathematical precision. As I have said, we are in the presence of a quantitative reaction; so admitting and acknowledging the precision of his method, we must come to the conclusion that the only possible fault to be found in his method would be in establishing the basic point of departure for every positive reaction at a level higher than it ought to be, or better not to have made the reaction sensitive enough.

From the clinical standpoint such a feature has no real practical value. The clinician must not forget that no pathologic process ever remains at a standstill. If a specific infection is affecting the blood, and if the Wassermann reaction is efficient enough to detect such a condition, it will detect it some time during its course.

It really does no harm if the condition is detected at the very beginning or shortly after. The Wassermann reaction and quantity of syphilitic antibodies in the serum run along two lines, a coordinate and an abscissa. These two lines must inevitably meet. The crossing point of the abscissa on the coordinate may not coincide exactly with the biologic changes taking place in the blood on account of the infection, but it will certainly occur at a determined moment, during the phase of the infection. When the route and the method followed by the investigator are always the same, the appearance of a positive reaction will represent the saturation of the organism with the same quantity, x, of syphilitic antibodies or colloidal substances, and from that point on every serum examined will always give a positive reaction. From the clinical as well as from the therapeutic standpoint, the reaction meets the exigencies of the clinic almost to perfection. Why should we then modify the method?

Dr. Noguchi, one of the most active Wassermann critics, is entitled to our praise for having spread the knowledge of the Wassermann reaction among many physicians in New York, but I fear he forgot during his pedagogic undertakings that he was training general practitioners and not scientists.

The majority of these physicians learned and applied the Wassermann method after a few days' experience in his laboratory, the majority of them lacking absolutely the elementary scientific foundations necessary to undertaking a work of the importance and delicacy of the Wassermann test; the strict rules established by Wassermann about the dosing, temperature and preparatory operations preceding the test being absolutely neglected. Noguchi's intention of reducing the Wassermann test to the simplicity of a urine analysis for the detection of albumin is very commendable; but can it be realized?

What a difference between his views and those manifested by Fournet before the Paris Board of Health asking that on account of the extreme difficulty and delicacy of the Wassermann test and its invaluable utility to humanity at large, the government should establish laboratories supervised and conducted by competent biologists to do nothing else but the Wassermann test, and to open them free for the practitioners.

The new Noguchi method, the so-called antihuman method, is theoretically rational, though clinically it has sometimes aroused doubt about its efficiency as a

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

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substitute for the original Wassermann test. While it is simpler than the original Wassermann, it needs the same amount of care and knowledge in those using it in order to be efficient; so the same criterion and criticism of the original Wassermann prevail for the antihuman method. The Wassermann reaction as it is now has proved to respond perfectly to the demand of the clinic. Noguchi has not proved his to be better; so let us keep what wears better and has the prestige of tradition besides.

CEREBROSPINAL FLUID

The real contradictory results have been obtained in the examination and interpretation of the cerebrospinal fluid findings.

I am glad of it, and I think that the time has come for the real understanding of the reaction of the cerebrospinal fluid.

We must understand that there is not always parallelism between blood condition and condition of the spinal fluid in regard to syphilis. In the same way there is no parallelism between the Wassermann reaction and lymphocytosis of the cerebrospinal fluid. Sometimes we have been led astray by considering these two conditions parallel. The reaction of one fluid may be equivalent to the reaction of the other, but not necessarily.

A positive cytodiagnosis of the cerebrospinal fluid and a positive Wassermann reaction of the blood serum can coexist in the same patient as equivalent formulas of the same condition, or can be absolutely independent. Lymphocytosis of the cerebrospinal fluid represents a reaction of defense of the meninges against an invading toxic product. Lymphocytosis is a specific element in meningeal tuberculosis, as it is in meningo-encephalitis, and as it is in tabes and advanced paralysis. But an especially interesting fact from the clinical standpoint is that all skin eruptions have a tendency to produce meningeal reaction, and as a consequence lymphocytosis.

Professor Hutinel gives statistics of seventy-two cases examined, affected by different dermatites, in which the cerebrospinal fluid presented more or less intense lymphocytosis.

I do not doubt that the cerebrospinal fluid in some of these cases, on account of the amount of albuminoid substances contained in it, would have produced a complement fixation. It would have been a mechanical fixation of the complement, masking a real positive Wassermann reaction. This fact is the explanation of the discussion aroused among investigators of the Wassermann test when they have obtained a positive reaction of the spinal fluid in some cases of scarlet fever.

We can find the explanation of this fact, apparently paradoxical, in studying the embryogenesis of tissues and organs.

The meningeal sac and the skin originate from the same layer, "the ectoderm," and it is plausible that these two anatomic elements, physiologically as well as pathologically, are so connected that their clinical manifestations also bear relations of cause and effect. These facts are not uncommon in the clinical observation of clinical phenomena. The so-called polyorrhomenitis, observed first by Semmola, a pathologic condition in which the inflammation of one of the serous membranes of the body is followed by an actual polyserositis, is one of the pathologic symptoms that tend to demonstrate the intimate relation existing between all the endothelial tissues of the body. This is also a phenomenon of embryogenetic origin. Arteriosclerosis can be considered as diffuse fibromatosis invading all the circulatory system.

Admitting this relation between skin and meninges, we can with a very good reason be induced to discard the absolute reliability of the Wassermann test in the spinal fluid as compared to the reaction of the blood serum. I do not mean by that to exclude entirely the spinal fluid from the benefit of the Wassermann test, but I mean that we must restrict the field of value of a positive reaction and probably increase the value of a negative reaction of the cerebrospinal fluid.

GENERAL PARALYSIS

A special value has been attached to the Wassermann test of the spinal fluid as a means of early diagnosis of general paralysis. This conception does not respond to the reality; in fact, I may say that it is in antithesis with it. The number of cases of general paralysis in which the Wassermann reaction gives positive results varies with the different investigators from an average of 50 to 60 per cent. Levaditi says that only 58 per cent. of the cases of general paralysis give a positive Wassermann reaction, but they all establish the fact that the reaction is almost always constant in advanced cases.

So the Wassermann test has much less value than the usual cytodiagnosis of the cerebrospinal fluid for the detection of the early stages of general paralysis, while it is of great usefulness for the prognosis and therapeutics of general paralysis, viz., when in suspected cases of general paralysis the Wassermann reaction of the spinal fluid is negative, the prognosis is more favorable because the specific treatment may help the condition of the patient, either retarding the progress of the disease or bringing on the so-called clinical recovery, viz., a recovery of a few years' duration.

The literature of general paralysis is rich in cases of clinical recovery. Leroy mentions a case of general paralysis in which the process subsided for a period of twelve years.

But when the Wassermann reaction of the spinal fluid in cases of general paralysis is positive we must realize not only that the case is helpless, but that the antisyphilitic treatment is many times dangerous, and will always help a quicker breaking down of the nervous system. So the clinical conclusions to which this information leads are as follows:

1. Positive cytodiagnosis and negative Wassermann reaction of the cerebrospinal fluid constitute a positive sign for the diagnosis of early stages of general paralysis and tabes paralysis, providing that the clinical syndrome accompanying the reaction does not exclude entirely the suspicion of the two above-mentioned pathologic conditions in the organism. Specific treatment is advisable; prognosis hopeful.

2. Positive cytodiagnosis and positive Wassermann reaction of the cerebrospinal fluid constitute a positive sign of the advanced stages of general paralysis, or tabes paralysis, provided that the clinical syndrome confirms our diagnosis. Specific treatment is harmful and sometimes dangerous; prognosis is bad.

Positive cytodiagnosis and positive Wassermann reaction also, if not accompanied by a definite nervous syndrome, constitute an evident sign of the disintegration of the nervous centers.

The reason for these conclusions lies in the fact that we must conceive the genesis of the process producing a Wassermann reaction in the spinal fluid as different in nature from the genesis of the process producing the same in the blood.

One is the process of disintegration of the nervous system; the other shows a process of reaction of the blood. One is a late passive symptom, the other is an early active symptom. The positive reaction in one process is the result of a mechanical fixation of the complement and the other is a normal reaction.

All these statements need explanation, and I am going to give them according to my understanding.

In the early stages of general paralysis the meninges and the nervous centers have not yet entered the phase of reaction, or, better, of defense against the infection, so no presence of antibodies is detectable in the cerebrospinal fluid, while there is predominance of antibodies in the blood serum. In this period the Wassermann reaction will be positive for the blood serum and negative for the cerebrospinal fluid, and the specific treatment will be beneficial, because the encephalus is still in sufficient condition of resistance to stand medication.

In the cases of advanced general paralysis the blood does not produce any more antibodies, while the nervous centers begin to manifest their disintegration, showing the presence in the cerebrospinal fluid of lipoids derived from their albuminoid components. We have in this phase a real autodigestion of the elements of the brain and spinal cord.

During this final phase the specific treatment becomes dangerous because of the impaired resistance of the nervous system to stand medication, and the production of lipoids and albuminoids in the cerebrospinal fluid will be rapid and so much in excess that its examination by the Wassermann test will give positive reaction, because of a mechanical fixation of the complement. This very fact is, in my estimation, of great value, as it shows that general paralysis is not exactly due to syphilis or its toxins, but to the immunizing substances produced in our organism which becomes a victim of autointoxication.

This fact would also explain why the spinal fluid of nervous patients with no syphilitic history could give a positive reaction; these are cases of progressive disintegration of the nervous centers, disintegration equal in result to the one produced by syphilis.

This wider interpretation of the reaction increases its value to a very high degree, because it does not state that a syphilitic infection has taken place, but it constitutes an index of the resistance of the nervous system, with the difference that in cases of absence of syphilis the positive reaction will show the passive condition of the nervous tissues, which, exhausted by the reaction against an invading toxin, rapidly proceed to their complete disintegration.

So the clinical interpretation of the Wassermann test will show either active lues when detectable in the blood serum and passive progressive disintegration or the so-called *déchéance* of the nervous system when detected in the cerebrospinal fluid.

This conception of the reaction will change our clinical as well as our therapeutic views, as it will also make us understand why other conditions of the nervous system, like dementia præcox, senile dementia, idiocy, imbecility, etc., could give a positive reaction. That would confirm the idea already expressed by me in the paper read at the opening of the Neurological Society in New York, when I said that probably we would be compelled to give the Wassermann reaction a wider interpretation and consider it in many cases as a grave disturbance of the metabolism of the nervous system, while syphilis would be considered as one of the most important etiologic factors in causing such a condition.

CASES EXAMINED

The statistics of approximately 250 cases examined by me in association with Dr. Sachs show the presence of a positive Wassermann reaction, even in cases in which the syphilitic origin of the disease could not be traced; this indicates the value of the Wassermann reaction in the study of cardiac and vascular diseases.

I shall first mention some of these special cases, inasmuch as the fact of their being apparently non-luetic might, in some way, affect the belief of the Wassermann students in the reliability of the reaction. I shall mention later the results obtained in the examination of patients affected with vascular and cardiac diseases.

The cases apparently non-specific in which the Wassermann reaction was positive are: (1) spontaneous myxedema, (2) scleroderma, (3) lupus, (4) leprosy.

MYXEDEMA

The finding of a positive reaction in a case of spontaneous myxedema may be considered an explanation of the etiology of the disease.

As explained by Hübschman, it is a well-known fact that, in cases of hereditary syphilis, hypertrophy of the thyroid gland is found, with sclerosis of its epithelial tissues and diminution of the colloidal substance. We know that the thyroid gland is a closed gland and that the ductus thyreoglossus, whose exit is in the foramen cecum situated at the base of the tongue, is already obliterated during embryonic life. Thus, a toxic product affecting the gland during embryonic life will remain encapsulated in the thyroid gland and bring within the tissues the degenerative changes of which it is capable. A process of sclerosis, once initiated in the gland, will spread by degrees over all its histologic frame and create a condition of diffuse fibromatosis, because of the tendency of any pathologic process to spread over the surface of tissues of the same type.

The beginning of sclerosis in the epithelial tissue of the gland will create a condition of diffused sclerosis of its epithelial tissue. In the same way, a process of sclerosis beginning in the aorta will gradually bring a condition of fibromatosis of the blood vessels. The effect of the sclerosis of the epithelial tissues on the process of secretion of the thyroid gland will result in a gradual hyposecretion of the colloidal substance due to the changes taking place in the epithelial cubical cells deputed to the secretion of this substance. As soon as the hyposecretion reaches such a degree as to affect the metabolic processes connected with the functions of the thyroid gland the first symptoms of myxedema will appear. Hereditary syphilis might well be considered one of the factors in the production of spontaneous myxedema, without clashing with the clinical conception of the obscure etiology of the disease until recently entertained.

SCLERODERMA

I obtained a positive Wassermann reaction in two cases of scleroderma examined and the same results are reported by other investigators. I am inclined to think that ordinary scleroderma, like scleroderma neonatorum and all forms of athrepsia and cachexia, is many times a manifestation of hereditary syphilis. Further investigations of the relation between Wassermann reaction and the different cachexias will probably make clear the obscure etiology of these diseases.

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LUPUS

Acquired as well as hereditary syphilis plays a very important rôle in the etiology of tuberculosis. The association of the two diseases in the same subject can assume two forms or types—anatomico-pathologically distinct, but identical from a practical standpoint. In one type we have association of lesions and in the other association of soil.

Association of Lesions.—This is the fusion of two lesions in the same region, and lupus constitutes one of the important characteristic forms of this tuberculoluetic hybridism.

Association of Soil.—This is the result of the simultaneous evolution of the two diseases on the same subject with reciprocity of influence of one disease over the clinical course of the other. We have one of the characteristic types of this association of soil in pulmonary tuberculosis affecting a syphilitic subject. The fact of a positive Wassermann reaction having been found in a case of lupus can be accepted only as a proof of the existence of these forms of syphilo-tuberculous hybridism.

LEPROSY

The positive Wassermann reaction obtained in a case of leprosy finds a plausible explanation in the theory that the case was one of tuberculous leprosy implanted on a syphilitic soil. It would be advisable to make further investigations of associations of this nature to establish whether this form of hybridism could constitute a new factor in the pathology of syphilis.

CARDIAC AND VALVULAR DISEASES

In five cases of aneurism examined—four of the cardiac aorta and one of the innominate—the Wassermann reaction was positive in each. Two of these patients admitted having had syphilis, two denied it, and one had chancroid.

In thirteen cases of the incompetency of the aortic valve, only one gave a negative reaction and two a weak positive. If we consider the weak positive doubtful, 77 per cent. of aortic insufficiency gave a positive reaction. Of these thirteen cases, eight acknowledged a previous syphilitic infection; the other five denied.

In five cases in which both aortic and mitral disease existed, there was one positive, two weakly positive and two negative. In eleven cases of mitral disease only, the Wassermann test was positive and in two cases negative, and in all these cases syphilis was either unknown or denied.

Owing to the fact that a cardiac lesion of syphilitic origin is not to be clinically differentiated from a lesion of another nature, we can easily understand the importance of the Wassermann test in the study of cardiac and vascular diseases.

TREATMENT OF SYPHILIS

My views on treatment in relation to the Wassermann reaction are in accordance with those of others, and are already mentioned in a preceding paper of mine.

The Wassermann reaction, from the point of view of treatment of nervous diseases, has almost inverted our usual therapeutic formulas. All the nervous manifestations of syphilis have been until now observed as postinfectious manifestations; so our intervention with active therapeutic measures has been a postinfection intervention. To-day, now that we have the possibility of detecting the infection during the intrainfectious period, our therapeutics will be intrainfectious and the possibility of avoiding or better preventing the manifestations of syphilis have been achieved to a great extent. So for a repressive therapeusis we have substituted a preventive one; though we must realize that we have only conquered the possibility of a preventive therapeusis, but not its methods.

We are to-day in the condition of the owner of a claim in a gold region before the soil has been exploited and the mine put in working condition.

Everything concerning the therapeutics of syphilis has been restricted to the use of two therapeutic agents, viz., mercury and iodid. Admitting that these two elements act on the system either as antiseptics or as alteratives, it is absurd to think that no other therapeutic elements answering the same purposes exist in the entire Pharmacopeia.

Does mercury act as a specific agent or does it act as a general antiseptic? If the action of mercury on the system should be purely antiseptic, are we not entitled to consider the action on the system of other antiseptics probably less deleterious than mercury? And if its action is an alterative one, are we not entitled to the same privilege?

It is undoubtedly true that a substance capable of producing in people working in mercury mines the classic syndrome of hydrargyrism—principally tremors, paralysis, hysteria, cachexia, etc.—can not help but constitute also a deleterious factor for the organism if given in small repeated doses.

The organic condition produced by a slow but prolonged action on the system of any toxic element is the establishment of pathologic lesions in the organism, functional at first, then anatomic. And we must remember that any pathologic symptom, when allowed to remain, even if purely functional, takes root in the system, and produces anatomic changes in the organs deputed to the manifestations of the symptom. Such an axiom prevails, especially in the pathology of the nervous system, and the consequences are much more serious because the effect spreads over a large surface and involves the organism as a whole. Allow a stimulation of the motor or sensory area to remain long enough, and one will notice that permanent degenerative changes of the morphologic elements situated in the affected area will take place. This continuous overlooking of the fact that a condition of intoxication of the system, when acting for a certain length of time, creates permanent pathologic conditions of the nervous system is one of our main clinical and physiologic misconceptions. Such a statement is proved, for example, by the so-called postoperative neurosis, affecting people that have undergone surgical operations. Many patients have been physical and nervous wrecks after going through operations and very successful ones; this condition is due principally to the absorption of the anesthetic, because of the fact that every chemical element entering the circulatory system acts on the nervous system first, and as a reflex on the entire organism after.

Is the beneficial action of mercury as a therapeutic agent offset by its deleterious action as a metallic poison? It is a question that can not help but puzzle the mind of the clinician. Have we ever tried to answer this question?

While in Munich six years ago I watched closely the experimental work done on the subject in the pathologic institute by a young physician whose name I do not recollect, and whose work never appeared in any of the publications of current medical literature.

He had injected into rabbits at different intervals solutions of bichlorid of mercury in varying strength during the period of four months. The spinal cord of these rabbits examined after the period of four months had elapsed showed sclerotic alterations of the posterior column and different in intensity in the different rabbits, but anatomically identical with those of tabes in man.

If this fact does not prove that tabes is caused by the action of a metallic poison, it certainly implies that once the anatomic lesions of tabes are established the advisability of treating a patient with mercury must be taken *cum grano salis*, and the question of using a therapeutic minimal must be the main consideration, if we have to use mercury, because its action in cumulative doses is apt to create anatomic lesions of the spinal cord and act on it as the syphilitic virus does. This also proves that the etiology of tabes is a neurotoxic one, and that other elements besides syphilis might perhaps show a predilection for the spinal cord, and produce a tabetic syndrome.

The question of therapeutics in general has always been neglected and many of us have assumed a rather cynical attitude toward any therapeutic method adopted, attempted or even suggested. I feel altogether differently on the subject, and my earnest belief is that through therapeutics only will medicine achieve the highest degree of evolution. I think that a misunderstanding, or rather a misconception, is at the bottom of our therapeutic failures. My viewpoint in the genesis of diseases is that blood is the bearer and transmitter of any infectious element, and that the localization of the infectious element in a special region or organ of the body is a simple process of metastasis. The microbes and toxins are transported by the blood current to such regions of the body as offer conditions most suitable for the accomplishment of their reactive processes, just as in a similar manner cancer cells are transported to those parts of the body wherein the malignant growths may be reproduced.

Such being the case, its logical consequence is that, if the therapeutic agent should follow the same route as that followed by the infective element, its action, general and local, would take effect as such points presented as are necessary for its action. The therapeutic agent must then be introduced directly into the blood in order to be carried to the place where the source of infection is—the blood must become the clinical recipient of therapeutic elements.

The main problem to solve, then, will be the one concerning the selection of the therapeutic agent in each pathologic condition and its dose. My attempts in this direction have been as many as were permitted by the clinical material occasionally at my disposal; and in order to remain on the subject I shall mention two of the attempts made by me in the treatment of syphilis. In both I was guided by the different clinical views that we could be allowed to assume in regard to the genesis of the infection without failing in logic and altering our conception of its pathogenesis.

If we consider syphilis as a chronic spirillosis in which the pathogenic agent enters the blood current and determines a general infection, we might also see a certain analogy between the *Treponema pallidum* and the plasmodium of malaria. Both enter the blood stream and both can produce severe anemias. This, I think, is the criterion that guided Dr. Benzman of the Diakonenkrankenhaus in Duisbourg in treating syphilis with intravenous injections of chlorohydrate of quinin. I adopted his views in three cases, one of malignant syphilis in which the patient proved to be mercury-immune, having been refractory to mercurial treatment, and in two cases of secondary syphilitic manifestations appearing in two patients that had been previously treated with mercury. All three answered promptly to the treatment. I injected about 4 gm. in the space of twenty days, injecting about 40 cg. each time every other day in the venæ medianæ. The examination of the blood serum by the Wassermann test was not made because the trial precedes the adoption of the Wassermann reaction as mean of diagnosis.

To a second attempt I was guided by considerations of altogether different nature. My earnest conviction, dating many years back, and proved by my paper on the treatment of appendicitis presented at the twelfth annual meeting of the Association of Military Surgeons of the United States in Boston, is that the therapeutic equation to be resolved in medicine is the same as that resolved by surgery, with the difference that for the term "local antisepsis" we must substitute the term "general antisepsis," or, in other words, disease is a closed wound in which the colonization of microbes and the action of toxins accomplish their destructive work far beyond our control. The main difficulty in adopting internal antisepsis is to use a therapeutic agent which is a powerful general antiseptic without being detrimental to the system. I have selected for the purpose, not only in syphilis but in many other infective conditions, a preparation of electric silver, in the colloidal state. The colloidal state of a metal represents a state of extreme division of the metal, an ultramicroscopic suspension of metallic parts in a menstruum. This extreme division corresponds to an immense surface of contact of the metallic substance, and, the substance being antiseptic, to an immense antiseptic area. It has been calculated that the total surface of 1 c.c. of electric gold in the colloid state corresponds to the surface of 600 square meters. This explains the immense antiseptic value of the electric metals in the colloidal state. The action of the electric silver in two cases of tertiary syphilis treated seems to benefit, though in a less degree than does hydrargyrum, the course of the manifestation.

The examination of the blood serum by the Wassermann test before beginning the experiment was strongly positive; the test made after five injections of 3 c.c. gave a weak positive reaction.

I shall follow the cases in order to see if the duration of the antiseptic action of the silver on the system will be such as to consider its action similar to the action of hydrargyrum on the syphilitic virus. If this should be the result, the natural deduction would be that mercury in syphilis does not act as a specific agent, but as an antiseptic one. All these attempts, if repeated on a large scale, would without doubt bring some useful and tangible results in the field of therapeutics. I think that the knowledge of serodiagnosis in different diseases will modify our views in therapeutics and will stimulate a new spirit of research in the different investigators.

CONCLUSIONS

Wassermann has initiated us in the conviction that the study of the chemical and biologic conditions of the blood can be used as methods of clinical diagnosis, and has opened a new era to medicine. It is by working on the development of this new idea that medicine will

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achieve the results never obtained before, and it is with this fact in view that the minds of the young generation of medical students must be occupied. The evolution of medicine has been relatively slow, because of the irrational methods adopted in clinical studies. A normal condition of the blood implies a normal equilibrium, while an abnormal condition implies a lack of equilibrium of all our systemic functions.

It is rational to think that each pathologic condition must reflect itself in the condition of the blood. It is a pathologic axiom that rationalism confirms, although science has not completely proved it, and to the student of nervous diseases this knowledge must be of more value than to any one else, because it is the nervous system that is the first affected by a condition of dyscrasia.

The nervous system and the circulatory system preside over the harmonization of all individual lives. One harmonizes the functions of the various organs, the other harmonizes their processes of nutrition. These two systems are in direct relation, physiologically and pathologically, and so much so that we can say that the etiology of nervous diseases must principally be found in the pathology of blood, and that the diseases of the circulatory system can find their principal etiologic factors in the conditions of the nervous system.

The Berlin Faculty of Medicine was the first to establish a chair for the teaching of serodiagnosis. It is only a beginning, but, remaining as it is, it will not be the bearer of the many useful results of which it could be capable.

In my opinion, the study of serodiagnosis in particular and of hematology in general must leave the fields of pure biology and enter entirely the field of the clinic. The utility of the laboratory scientist ceases the moment at which the work of the clinician begins. The scientist will become a real prominent and substantial factor in the progress of medicine when his work goes *pari passu* with the work of the clinician. The medical scientist is always a poor observer of clinical facts, and his clinical deductions are general paradoxes from the practical clinical standpoint; so we can not allow him to draw conclusions of clinical value. We must take his knowledge, his experience and apply it at the bedside. Hundreds of times we shall be compelled to modify and rectify not only his views, but his very method of research in order to harmonize them with our clinical needs, and principally with the views of logical therapeutics.

If every pathologic condition of the organism is the expression of chemical, morphologic or bacteriologic blood formulas and if the principal genesis of disease is found in the changing of the blood conditions, our therapeutic methods also must change entirely, and the therapeutic equation to be solved for each pathologic condition will be to find the therapeutic agent which, introduced directly into the blood, will neutralize that heterogeneous toxic element in circulation which causes the disease.

Hypodermoclysis, venoclysis, seroclysis, etc., will entirely supersede every other therapeutic means.

What is the value of any scientific clinical investigation if in the field of therapeutics we are almost on the same level with Galenus? Do we expect the Rockefeller and Pasteur institutes or any other institution for biologic research to investigate for us the most appropriate method of therapeutics? Every one of our teaching institutions of our hospitals must undertake the colossal task imposed on us by modern exigencies.

We have in Washington squads of healthy human beings used once in a while by the Board of Agriculture in order to investigate the effects on the system of certain chemical ingredients used as food preservers. Many times these squads of white slaves are taken sick or after a certain period of time the functions of metabolism are sufficiently altered to prove that a certain chemical element used in the preservation of food material is of prejudice to health.

Why should we not in all of our institutions with more vital reason do a much more useful and humane thing by having a ward well conducted and equipped with sick patients reserved for therapeutic research?

The division of labor is a principle of economy applicable to medical work as well as to any branch of human activity. Thousands of institutions devoting time and work to the same object, viz., research on rational therapeutics, would bring in a short time the results that thousand of years of ill-conducted, ill-divided and unproperly understood work have been unable to produce. We certainly have no reason to be proud of ourselves to-day. It is enough to watch the throngs of uncultured, unscrupulously absurd and daring healers infecting and infesting public opinion to understand that we are deficient in value and professional prestige. We must work and work intelligently in order to rescue ourselves and our mission.

It is following this order of ideas and ideals that the modern evolution of medicine will achieve its climax; and those who enjoy life in this country, which is a leader of civilization, should show to the entire world that in the fields of medical science we are also striving for a well-earned supremacy.

175 West Seventy-second Street.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. SACHS, NONNE,* NOGUCHI, AND CASTELLI

DR. WILLIAM J. BUTLER, Chicago: I am afraid if we were unacquainted with the literature of this subject we would consider that we were dealing with a new reaction in the Noguchi modification. But, of course, we are still dealing with the Wassermann reaction, founded on the complement-binding principle of Bordet, and we are also dealing with a modification by Noguchi along lines already published by Tschernogubow, who was the first to suggest the use of the anti-human amboceptor, and a simplified system for performing the reaction. But we certainly owe a distinct debt to Noguchi for demonstrating, as he has, that the materials dried on filter paper will retain their properties indefinitely, because we know the great difficulties attendant on the performance of this reaction by virtue of the inconstancy of some of the materials, viz., the antigen and likewise the amboceptor, which may vary decidedly from time to time. If these materials do hold indefinitely in the dried state, it will be a distinct aid to all those who have performed or are performing this reaction, and will undoubtedly extend its application or performance by a number of laboratory workers. I doubt, however, if the general practitioner will ever be able to utilize this test to any advantage, because no one who has not had some training in serological technic could be expected to use any reaction based on this principle and rely on his results, because there are so many possible sources of error irrespective of what modification may be used, and this modification will not be of any great service to such practitioners.

It is generally conceded, I think, that the Wassermann reaction offers a certain diagnosis for syphilis, and I believe that it is likewise found in a few other infections—sleeping sickness, leprosy, and some cases of scarlet fever. I found it in four out of twenty of the latter, and also found it in two cases of noma, also in isolated instances in the presence of

* The paper by Dr. Nonne appeared in THE JOURNAL July 24.

other infections, but that is only to be expected, because in the many cases that are examined it is certainly reasonable to conclude that the isloated instances of cancer or tuberculosis in which the Wassermann reaction is found, the patients have had syphilis. The evidence seems to show conclusively that the Wassermann reaction means active syphilis, which point has been reiterated by Dr. Sachs, and it is to be looked upon not as a reaction for tabes exactly, nor for paresis, when we are dealing with such cases, but as a reaction for active syphilis.

Now, as to why we do not find a positive reaction in all cases of tabes, or, at least, in the vast majority, like we do in paresis, we may theorize from various standpoints. It is conceivable, for instance, that in a condition so chronic as tabes, caused undoubtedly by syphilis in at least the vast majority of cases, and I believe in all, the primary specific infection may have periods of quiescence, when the reaction for syphilis will not be positive. Moreover, such patients are so frequently subjected to specific treatment which has such a powerful influence on the Wassermann reaction, that it is evident we may expect to find frequently negative reactions in tabes. Likewise, with reference to the results with spinal fluid, which have been unusually low in Dr. Nonne's experiments, in comparison to the results with serum, I think that we would also indulge in fantastical excursions into the theoretical side of the question if we attempt to explain it. Dr. Castelli has shown us what ideas one may formulate on the subject. The fact remains, however, that the most practical side of the question is to examine the blood serum, and in a majority of the cases of paresis, and in a large percentage of the cases of tabes, we get a positive reaction with the Wassermann test, thus clinching the etiologic relation to syphilis. I have not had the opportunity to investigate Nonne's butyric acid reaction, but have Noguchi's ammonium sulphate, and I find it, in inflammatory conditions of the meninges, positive; for instance, in the epidemic form of cerebrospinal meningitis; while it is theoretically interesting and possibly might be regarded as an addition to our resources in a diagnostic way, it can not be regarded of specific value.

DR. FRANK E. FOX, Fulton, N. Y.: I agree that Dr. Noguchi's test is not suitable for the general practitioner, but I do not think that Dr. Noguchi really intends this test to be used by the general practitioner, but intends it to be used by men in clinical laboratories and not by men who do two or three tests only, but by men who do a considerable number of tests. I recently read a paper on the comparison of the Wassermann and Noguchi tests in 200 cases, mostly of syphilis in various stages, and the practical results that I have obtained show a larger proportion of positive results from the Noguchi test than from the Wassermann, although at the same time I should say that the two tests run roughly parallel. Of the eight different methods that have been suggested for serodiagnosis of syphilis depending on the principle of complement fixation, all except the method of Noguchi have more or less serious objections.

With regard to one or two difficulties experienced in the practical working of the Wassermann test, I certainly think that the chief difficulty to be encountered is in the preparation of a suitable antigen. If we could have a uniform and standard antigen a great advance would be made. Dr. Sachs has suggested that certain mixtures called A and B, respectively, be used; and it is claimed that the results with the use of these mixtures are practically the same as obtained when the alcoholic extract of syphilitic fetus is used; although they admit that a less number of positive reactions is obtained by these mixtures. Facini states that with mixture B he obtained practically no good results at all and that with mixture A he obtained 66 per cent. + as against 84 per cent. + by using the alcoholic extract of syphilitic fetus.

The one important thing in making a test from a diagnostic standpoint is to repeat the test possibly for two or three weeks in succession, and it is absolutely important to use two or three different kinds of antigen. I think the experience of most observers is that with some extracts positive results are obtained and with others negative; and this should teach us that in an important case for diagnosis two or three different extracts should be used in addition to repeating the dose.

DR. ALEXANDER S. WOLF, St. Louis: I am a dermatologist and come as a visitor to this symposium. I am especially interested in the importance of the Wassermann reaction for syphilis in cases of obscure nervous diseases. I think something should be said from the standpoint of the dermatologist, when the question of importance and reliability of Wassermann reaction is being discussed. I had an opportunity to review the recent literature on this subject from the point of view of a dermatologist in a paper which I read in St. Louis some time ago. I am satisfied that many things which are not clearly understood in the statistics of nervous diseases may be better understood if we consider the parallel statistics of the Wassermann reaction in cases of syphilis.

The first reports on the Wassermann reaction brought very interesting divergencies in the findings. While Neisser found the reaction positive in 70 per cent. of recent, clinically well-established cases of syphilis, Wassermann found it positive in 90 per cent. If two founders of a method, working on the same principle, come to such enormous difference—I do not mention the varying statistics of other and later investigators—while using entirely fresh syphilitic material, is it any wonder that one finds such divergence in the results of the sero reaction in cases of nervous diseases, where a supposedly acquired luetic infection occurred years and years ago, if at all, and the ways and means of establishing an eventual syphilitic origin of the disease, either clinically or by any other method, is very difficult?

In Professor Reilly's recent publication from the Leipsic clinic for internal diseases, it is stated that in the course of investigations in connection with syphilis, the seroreaction, eight cases of tuberculosis were examined as to the complement binding of their serum, which is the principle of Wassermann reaction. The results even in these few cases were striking: 3 gave a strong positive Wassermann, *i. e.*, hemolysis did not take place at all; 3 others gave a reaction of medium degree and the remaining 2 a weak reaction. In other words, over 35 per cent. of cases yielded a strong positive reaction. Salomon, chief of von Noorden's clinic for internal diseases in Vienna, reported at the Congress for Internal Medicine, held in Vienna in May, 1908, that he found a positive Wassermann reaction in 5 out of 23 cases of tuberculosis, which is a considerable percentage. If you consider for a moment the prevalence of consumption in the large cities in this country, as well as in Europe, especially in those strata of population which provide the clinics for venereal diseases with their material for investigation, you can imagine how the statistics of positive Wassermann reaction might be influenced, if in every case of syphilis it would be stated whether tuberculosis were present or absent. Therefore, so long as the statistics of the Wassermann reaction lack one important feature, viz., the statements regarding the general condition of the patients as to exclusion of any other disease which has already been found or may be found in the future as giving the reaction in a rather large number of cases, they must be considered with less enthusiasm than the ardent followers of Wassermann would like to see. The seroreaction has already lost the scientific foundation which Wassermann originally claimed for it and is an empirical method that promises to become a valuable aid to clinical diagnosis. But its specificity for syphilis is more than doubtful. A voice of warning must therefore be sounded, because boundless enthusiasm is apt to discredit a method which at present is only in its inception and which through a judicious criticism will gain more than through a criticless admiration.

DR. MAXIMILIAN HERZOG, Chicago: I have had some experience with the Wassermann test, having tried it in about 100 cases of which I have more or less complete clinical histories. I want to go on record with the statement that Noguchi's modification, commendable as it is from a purely scientific standpoint, is a very dangerous thing because it tends to place in the hands of the general practitioner a test which is exceedingly difficult, a test which involves some very delicate principles and which can never be made a simple test, as

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has been pointed out. I have had some experience with one modification, that of Bauer, and while I can not go into the details here of the defects I found in that modification in comparison with the original Wassermann test, I can state that from what I have seen, none of those modifications ought to be used, and we ought to stick to the original Wassermann test, which has already been tried in many thousands of cases. We have from four European clinics alone the reports of 10,000 cases.

Now, so far as my material is concerned, from the standpoint which interests you, it has been rather scanty. Most of my cases were of the ordinary cutaneous type and they came from the hands of the dermatologist; but I have examined 8 cases of tabes of which 6 were positive and 2 negative; the 2 cases which were negative were patients who had been treated with mercury and the iodids. I had 3 cases of early paresis. All of those reactions were positive. The other cases examined were of doubtful types and they were all negative, but all of those were proved finally not to be cases of syphilis. So, on the whole, I can confirm on a very small number of cases of tabes and paresis those larger statistics on these parasyphilitic affections given here to-day.

In conclusion I want to urge you to stick for a while at least to the original Wassermann test. Let it be made by men competent to make it and let us not take any statistics from men who say that they find that 25 per cent. of their cases of tuberculosis give a positive reaction. A positive reaction by the Wassermann test means syphilis and nothing else, except, of course, an occasional case of scarlatina, leprosy, etc. A man who gets 25 per cent. positive reactions in tuberculosis doesn't know how to make the test.

DR. B. SACHS, New York: I have very little to add except that the remark which the last speaker made, I think, has a great deal of truth in it; that if any one were to claim that he had found 25 per cent. of tuberculosis cases giving a positive reaction under the Wassermann test, personally I should be very much inclined to doubt the accuracy of his test. The only safe position for all of us to assume is that this entire question is in its earliest stage; and the one reason why I was very glad to help bring this subject before the meeting to-day was to encourage as many men as possible to take up the line of investigation; and I think we shall only arrive at the truth of the matter after we shall have had statistics upon thousands and thousands of cases. It will be much the same, I think, as it was at the time of the agitation in favor of the adoption of the Widal method in the diagnosis of typhoid. Everyone now knows about how much importance to attach to a positive or negative reaction in typhoid.

In order that my own view may not be misunderstood, I would like to say that I agree with those who favor retaining the Wassermann method, and I hope that everyone who works in this field will take the trouble to acquire the original method. But I also want to say, as one who has personally worked in this field and who has tried to do conscientious work in it, that I hail with delight Dr. Noguchi's attempt at a modification of the method, and chiefly for the reason that everyone who works with the Wassermann method knows how difficult it is at various times to obtain satisfactory material for reagents. I think the suggestion made is perfectly correct. The method should be designated as the Wassermann test in deference to Wassermann, who did the great original work in this field, while the method described by Dr. Noguchi should be called the "Noguchi Modification of the Wassermann test." Dr. Noguchi's idea of trying to dry these various reagents, preserve and have them handy for use at all times is one that I can only admire. I would suggest that everyone who works with the Noguchi modification should for the next year or two use it and control it by a parallel series of tests according to the original Wassermann reaction. In that way, and by making comparison between the two methods, we will in time learn whether the Noguchi method can be accepted as a full substitute for the Wassermann reaction. In a parallel series of my own of a large number of cases, the agreement between Noguchi's modification and the original Wassermann test was very remarkable indeed. The differences were confined to three or four instances and such differences can readily be explained. They were so slight that I want to go on record as much impressed by Noguchi's modifications. But I plead in favor of running the two tests side by side for a considerable period.

DR. H. NOGUCHI: I regret very much that Dr. Castelli appears so far to misunderstand my attitude toward the original Wasserman method as to speak of me as a bitter critic. My attitude is simply this: I recognized certain defects inherent in the Wassermann method, and what I have done is to improve that method by eliminating these defects. My criticism is a criticism of the principles involved in the technic and not of the persons employing it; and hence there is no bitterness in my criticism. Dr. Castelli has also referred to the work of those whom he refers to as my pupils. In the usual sense of the word, I can not be said to have had pupils. Dr. Castelli himself, however, did some tests in my laboratory before I completed my new method. The Wassermann reactions reported by him have been done, I believe, largely with the titrated amboceptor and antigen which I furnished. A number of other physicians, who have worked with me over a period of several months, have learned not merely the procedure employed in doing the Wassermann and my own method of the fixation test, but also the principles of hemolysis, and the method of preparing the antigen, amboceptor, and complement, but are, I feel justified in considering, capable of carrying out the serodiagnosis of syphilis in a reliable manner.

In my opinion forty cases are hardly enough to base any final conclusion on. Besides, the slight discrepancy between the results obtained by Dr. Castelli and those by me may also be ascribed to the individual differences. I doubt whether Dr. Sachs would have obtained a better agreement of the results if he had sent these specimens to two different persons employing the same method. That my system is more sensitive than the Wassermann is, however, clear from my own comparative study on 244 cases, but there is no undue sensitiveness in the system.

I had perfected my system before Tschernogubow's article appeared, and I may point out that Tschernogubow's method is fundamentally incorrect in its principles. Not one case has been reported by him and he has now another method in which he proposes to use guinea-pigs' washed corpuscles.

Concerning Dr. Herzog's warning of the danger of abuse of the reaction on account of simplification, there can be no more danger in this than in the difficult Wassermann test, so long as both are to be carried out by trained workers only. The simplification removes the difficulties for these qualified workers, and offers a better opportunity to untrained men to become qualified within a shorter period. There is no guarantee that the difficulties in the Wassermann method will necessarily bar unqualified workers.

Clinical Notes

TWO CASES OF TUBERCULOUS INFECTION OF THE PERITONEUM

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These cases illustrate unusual phases of intraperitoneal tuberculosis, and serve also to draw attention to certain points in the natural history of this disease which do not appear to have received sufficient notice at the hands of systematic writers.

HYPERTROPHIC APPENDICITIS OF TUBERCULOUS ORIGIN

CASE 1.—*History.*—S. R., boy aged 10, had had numerous previous attacks of appendicular colic, and a history of "not feeling well" for one month, with the present acute attack of three days' duration.

Examination.—Patient was rather pale and emaciated; pain, vomiting, constipation, tense rectus, indistinct tumor at McBurney's point. Afternoon temperature, 102 F.; leucocytosis, 20,000.

Operation.—Incision over tumor revealed an old chronic appendix of such enormous thickness that it was taken at first for a loop of small intestine. The abdomen contained some clear fluid. The appendix was surrounded by dense adhesions protecting several perforations, and on removal measured irregularly 3.5 cm. (1½ in.) in diameter by 12 cm. (5 in.) in length. At its point of origin from the bowel it was of normal caliber. Section showed it to be composed of dense fibrous tissue, surrounding numerous cheesy foci and tubercular granulations. The perforations were apparently not due to pressure necrosis, but to a slow extension of the tuberculous process entirely through the wall of the tube. The raw surfaces left after removing the appendix oozed so freely that gauze drainage was introduced.

Subsequent History.—This represents a slow, but complete and natural recovery from a tuberculous infection, after surgical removal of the major focus. The patient remained under daily observation for twelve weeks; during this time there was a temperature range from 98 F. in the morning to 102 F. in the afternoon, with night sweats. The urine showed constantly a large amount of indican, but no sugar or albumin. The leucocyte count varied for many weeks from 27,000 to 48,000, but the percentage of polymorphonuclear leucocytes was never far from normal. After eight weeks the wound closed, but the temperature and blood count remained so high and the obstructive symptoms were so suggestive that in the tenth week the incision was reopened in the expectation of finding a subphrenic or mesenteric abscess. Nothing was found beyond numerous adhesions and ropes of knotted omentum, which were partially resected and broken up; otherwise, the intraabdominal conditions were very satisfactory, and the wound was closed after freshening all muscular edges to insure protection against subsequent incisional hernia. The second operation had little effect on the progress of the case, except to relieve the partial obstruction; the temperature slowly subsided; the appetite, strength and flesh returned; and for over four years the patient has been to all appearances in the best of health.

COMMENT

This very unusual appendix was the product of an effort to accomplish the inclusion of certain tuberculous foci within a zone of resistance and protection. Undoubtedly the process was over-developed, and resulted in a general fibrous hypertrophy of the entire organ.[1] Hypertrophic appendicitis is of two varieties: (1) a form based on obstruction, in which the muscle fiber is increased through the stimulus of resistance to peristaltic action at the point of obstruction; and (2) a form in which diseased foci are surrounded by protective zones —more or less coalescent—of granulation and fibrous tissue. More commonly the diseased focus originates in a foreign body, but in rare instances, like the present, the irritating material from which exclusion is sought is represented by colonies of the *Bacillus tuberculosis.*

The important clinical points to be noted are: (a) That in spite of the chronic process the onset was apparently sudden, so far as the call for medical aid was concerned; (b) that the case prior to operation gave little hint of the tuberculous source of the trouble; (c) the long-continued postoperative temperature and phenomenally high leucocytosis were incorrectly inferred to represent further mixed infection with abscess formation. In reality they represented a virile and eventually successful resistance to such of the tuberculous material as remained active within the peritoneum after the removal of the principal deposit.

Safe general rules to deduce from this case are: (1) A sharp rise in temperature and leucocyte count, after operations for tuberculous conditions, indicates vigorous resistance, and, other things being equal, should influence a favorable prognosis. (2) Secondary operations, in tubercular cases, unless for well-defined obstruction, are not indicated on the sole basis of fever or high leucocytosis.

1. A similar case is reported by Murphy in the Am. Jour. Obstet., 1904, xlix.

TUBERCULOUS PERITONITIS WITH LARGE PSEUDOCYST, AND CHRONIC OBSTRUCTION

Case 2.—Illustrating, (a) ascitic form of tuberculous peritonitis with adhesions; recovery after exploratory incisions, followed by (b) encysted deposit communicating with bowel, "tubercular pseudo-cyst."

History.—In 1906, Dr. W. H. Sands of Fairmount, W. Va., made a laparotomy on R. J., an otherwise apparently healthy young woman, aged 22, unmarried and undoubtedly a virgin. He found a miliary tuberculous peritonitis, extensive in character, moderate ascites, and dense fibrous adhesions between intestines and all the pelvic organs. He removed nothing, dusted well with iodoform and closed without drainage. She left the hospital in three weeks. A mucopurulent discharge from the bowel developed and in eight months she was again operated on, this time for obstruction. Prior to Dr. Sands' second operation she was seen by the writer, who can vouch for her apparently desperate condition. She was of a waxy pallor; the bowels were distended and the abdomen very tender; the evening temperature was high; the bowel movements were scanty or mucopurulent, and the patient was allowed to go to her home on the theory that she was fatally ill with peritoneal and intestinal tuberculosis. On reaching home Dr. Sands broke up many of the adhesions, found no evidence of the former miliary tuberculosis, dusted with iodoform and closed. Recovery again was uneventful. In six months Dr. Sands again saw her with several large joints involved in an apparently tuberculous arthritis. At this time there appeared to be some involvement of the lung. No operation. Weight, 105 pounds. On the subsidence of the arthritis she was sent to the mountains where she remained one year. She then returned to Chicago and came to my office to get work as a nurse. She was a picture of exuberant health—plump, ruddy and vigorous. Weight, 130. Within a month she was again taken with symptoms of acute obstruction and her subsequent history is as follows: Temperature, from 100 to 103 F.; tongue clear; nausea and vomiting frequent; constipation obstinate, but not unyielding; abdomen distended, but rigid and tender only below the line of navel; urine dark brown with strong reaction for indican, no albumin; movements contained some mucopus. In lower left quadrant in the region of the sigmoid there was a swelling, round and tender, about the size of an infant's head at term. Blood count: 18,000.

Diagnosis.—Infected cyst; obstruction from combined effect of chronic adhesions and enlarging cyst.

Treatment.—Under hot applications and a starvation diet the symptoms improved for a few days, and there was some reduction in the size of the tumor, coincident with free evacuations from the bowel, containing pus. But presently the temperature again mounted and the patient was taken to the hospital for operation. A median incision through the old scar —which was hernial—opened a smooth non-tuberculous peritoneal sac, containing a little clear fluid, and traversed by numerous bands and layers of old adhesions, obliterating effectually all organs and landmarks. During the subsequent manipulations neither uterus nor ovaries were recognized as such. The excised mass seemed to be an ordinary infected cyst of the right ovary or broad ligament, which had developed in the usual manner but had assumed rather peculiar relations toward the sigmoid colon in consequence of previous tuberculous infection. The tumor was completely wrapped in the sigmoid flexure; the omentum was not encountered during the operation. With great difficulty a line of cleavage was secured along the anterior aspect of the tumor, and the growth was literally dug out of the pelvis. Several small thin-walled cysts, containing clear fluid and lying apparently close against the uterus were also enucleated; these had no connection with the larger tumor except by contiguity. While separating the tumor from the upper part of the rectum, the adhesions were so close that the cyst wall gave way, allowing a quantity of brownish fluid of fecal odor to escape. The

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raw rectal wall was at once carefully examined, but no bowel opening could be detected, and after closing the opening in the cyst with forceps, the enucleation was completed. There was no hemorrhage from any single large vessel, although the oozing from torn surfaces was profuse. The tumor had been contained in a sort of globular cavity made up of pelvic wall, sigmoid and rectum, bladder and uterus, and there was not the least suggestion of pedicle. The adjacent bowels were then cleaned and examined for perforations, but, although the surfaces were unhealthy and denuded, they presented no macroscopic tubercular nodules and no perforation could be discovered. Three cigarette drains were introduced, two to the depths of the cavity and one to the most suspicious bowel surface, and the abdomen was closed after excising the hernial sac and renewing the normal relations of all the parietal structures to the median line. The operation was followed by great vascular shock and considerable vomiting and distention, but in five days improvement was coincident with the appearance of a fecal fistula, through which escaped, at first, all of the evacuations and large quantities of flatus. Presently, however, the rectum resumed its function, the temperature became continuously normal, the appetite and strength improved, the fecal discharge ceased, and at the present writing conditions point toward a speedy permanent wound healing under occasional treatment of the fistulous tract with Beck's paste. Weight, 124, and increasing.

Examination of Specimen.—Smaller cysts (2 or 3) not preserved, but filled with clear contents; walls unthickened. Contents of large cyst not preserved, but of fecal odor, gray-brown color, not bloody, and about the consistency of buttermilk. Size, prior to rupture, that of an ordinary cocoanut; after removal, that of a baseball. Outline, irregularly globular; no pedicle; surface rough and fibrous, with no peritoneal surface in evidence. Thickened areas in the wall were later recognized microscopically as tube and ovary. Sac wall, irregularly thickened, fibrous and varying from .5 to 5 cms. (1/5 to 2 in.) in thickness; some soft spots containing blood and pus; a fistulous tract 4 cm. (1½ in.) long, lined with grayish-green membrane and terminating abruptly on inner and outer faces of sac. The interior of the cyst is rough, irregular and gangrenous, and the wall in places peels rather readily into layers.

COMMENT

The original pathologic diagnosis made by the laboratory in this case was pyosalpinx and pelvic abscess. Later Dr. E. R. LeCount, without knowledge of the clinical history, became suspicious of the specimen and took up the microscopic examination himself. After repeated section cutting, he was able to demonstrate:

(a) Many microscopically typical foci of tuberculosis were present with no gross tuberculous degeneration.

(b) The cyst was neither covered nor lined with epithelium or endothelium, and that its wall was made up of layers of organized fibrin and inflammatory cells.

(c) The tube and ovary were incidentally included in the cyst wall, but that they did not form any integral part of the cyst.

(d) The tube and ovary were not themselves tuberculous.

The findings at the first operation were those of the ordinary form of tuberculous peritonitis, probably secondary to intestinal tuberculosis. At the second operation the gross tuberculosis had disappeared, leaving the usual scar-tissue adhesions. At the third operation the pathologic finding was an extremely rare one: a pseudocyst composed of tuberculous inflammatory tissue, probably originating from an encapsulated perforating ulcer of the sigmoid, and fed from time to time with septic material from the bowel.

Such pseudocysts are mere sacculated receptacles for morbid products, and are to be differentiated from true cysts of the genital tract by their lack of true lining and covering membranes, by the thickness and inelasticity of their walls, and by the wall itself being composed entirely of inflammatory material. Their origin is usually tuberculous. Clinically, these deposits are commonly taken for ordinary pelvic cysts, or for tubo-ovarian abscesses, and there is no possible way to identify them prior to operation, except through inferences drawn from the history.[2]

85 Rush Street.

CRURAL AND AXILLARY RINGWORM IN THE CANAL ZONE

ALFRED G. FARMER, M.D.
Physician, Gatun Dispensary, Isthmian Canal Commission
GATUN, CANAL ZONE

Mention in THE JOURNAL of June 26, 1909, of the prevalence of tinea cruris in the temperate zone would seem to make some description of this annoying disease, as seen so commonly in the tropics, of interest. Tinea cruris et axillaris is seen with great frequency among the laborers and lower class of natives in the Canal Zone, and it is by no means uncommon among the natives of the North resident here. The disease flourishes best among those of uncleanly habits and improper and careless personal hygiene. The practice of this class of persons of washing their clothing in streams and pools and of spreading it on the usually moist ground and grass to dry seems to provide a ready means of infection. The infrequency of change of clothing and of bathing may also be mentioned as predisposing factors.

The disease usually appears first, as the name implies, on the inner side of the groin next the body and in the armpits, rapidly spreading, if neglected, over the scrotum, thighs and trunks. Patients frequently present themselves for treatment who have two-thirds of the body surface affected. There first appears a small reddish area of inflammation with slightly raised edges, these spots gradually spread peripherally till they reach the size of a silver dollar or of the palm of the hand. The inflammation in the center of the "circle" recedes as the periphery enlarges. In neglected cases new areas of infection soon appear in the near vicinity and as they enlarge the rings coalesce, forming one large infected area of joining rings. The intense itching, especially at night, makes this disease most annoying and often causes badly infected sores and ulcers as a result of lacerations by the finger nails in an effort to find relief. The tinea cruris et axillaris as seen here does not usually destroy the hair follicles.

The treatment is prophylactic and active. Bathing and changing the underclothing should be practiced at frequent intervals, and all clothing should be thoroughly boiled in the laundry and hung on lines to dry. Effective active treatment will be obtained by cleaning the parts thoroughly with the tincture of green soap and water and applying with some friction the ointments of sulphur or salicylic acid or iodin, this procedure to be repeated once or twice daily for several days, or when comparatively small areas are involved and the individual is of sufficient hardihood to stand the few moments of severe burning, a thorough painting with the tincture of iodin or a solution of salicylic acid in alcohol and ether will very promptly eradicate the fungus. The latter measures sometimes give rise to a troublesome irritative inflammation that will require for a few days the application of one of the mild ointments, as boric acid or 1 per cent. carbolic acid in petrolatum.

2. Koenig: Spec. Chir., II, 155, 1889.

CASE OF LYMPHATIC LEUKEMIA

H. H. HAZEN, M.D.
WASHINGTON, D. C.

On account of the marked blood picture the following case of lymphatic leukemia seems worth reporting:

Patient.—M. D., aged 60, Irish, a watchman. The family and past history are both unimportant. The patient denied any venereal disease and had never used alcohol. He had always been a strong, healthy, hard-working man.

Present Illness.—During the summer of 1903 he noticed enlarged glands in the neck, axillæ and groins, together with slight weakness. He had been unsuccessfully treated by several physicians. He first came under observation Oct. 28, 1904, complaining of general weakness, epistaxis and enlarged glands. He was put on potassium iodid, and in two weeks the glands had become smaller and softer; they soon regained their usual large size, however. The probable diagnosis of leukemia was made and the patient was put on Fowler's solution, which did not help him.

Examination.—Late in November I saw the patient. He was a well-nourished man, with skin a trifle bronzed, lips and mucous membrane extremely pale. Lungs and heart were normal; abdomen was distended with fluid; the liver was not palpable, but the spleen extended a full hand's breadth below the costal margin. In the anterior triangles of the neck there were enlarged glands, some being as much as 6 cm. long. They were discrete and very hard; the axillary and inguinal glands were also markedly enlarged. From neither the history nor examination was there any evidence of involvement of the mediastinal glands. The legs were slightly edematous; the urine was absolutely normal. One month later a blood examination was made, with the following results: Hemoglobin, 20 per cent.; red cells, 960,000; white cells, 250,000. A smear showed the red cells to be normal in appearance; no nucleated reds and no megaloblasts were seen. The predominating white blood cells were small mononuclear non-granular cells, typical lymphocytes. Only two polymorphonuclears were seen. There were no eosinophiles, no mast-cells, no large mononuclears, and no myelocytes.

Course of Disease.—While I did not see the patient again, I am informed by his physician that he grew steadily weaker, that he had severe attacks of epistaxis and that his liver became enlarged. Death took place on Feb. 12, 1905. No autopsy was permitted.

1204 Eighteenth Street.

TUBERCULOSIS EXHIBIT AND CABINET

FRANK B. WYNN, M.D.
INDIANAPOLIS

This descriptive article is published as a means of answering numerous inquiries concerning the tuberculosis exhibit shown at the recent American Medical Association session in the name of the Indianapolis Medical Society. As will be seen from the picture, the exhibit is housed in a handsome and substantial cabinet, consisting of an upper show case in which are placed models of pavilions, shacks, tents and devices used in the treatment of tuberculosis. Appended to each of the models are brief data as to materials and cost of construction. At one end of the cabinet is a flashlight transparency, which announces that with the lapse of every three seconds another victim has been claimed by tuberculosis.

The lower half of the case consists of two drawers, 10 by 14 by 22 inches in size, opening on opposite sides of the case. This enables several persons to be examining the contents of the drawers at the same time. In these drawers are anchored (similar to any index file) a hundred or more heavy cards on which are photographs, cartoons and diagrams with appropriate descriptions, statistical data, mottoes, sanitary dicta, etc., relating to the whole problem of tuberculosis.

Signs in the glass case call attention to the drawers below where the observer is invited to learn the story of the great white plague. A smaller cabinet embodying the same principles can be manufactured for at least half the price of the larger one.

Marvelous strides have been made in preventive medicine during the past two decades through the usual health board propaganda—bulletins, circulars, popular lectures and the like. More recently these means are being supplemented by exhibits relating to public health problems—notably tuberculosis. While they represent the most efficient means thus far employed to enlighten the public on sanitary questions, they are open to the serious objection of cumbersomeness and expense in maintenance. They are presented for a few days in the community and perhaps never again. Such spasmodic efforts can not bear the good fruit that would arise from means which could keep the question constantly before the people.

DISADVANTAGES OF PAST METHODS

As a concrete example take the exhibit of the New York Charities Organization. It is the most complete and comprehensive that has been devised in this country. Installed for a few days now in one part and now in another part of New York City, it has been of incalculable value in teaching, especially the lower classes, the story of tuberculosis in all its aspects. But however excellent, a fair criticism of the practicability of this exhibit (and similar ones) may be made on the following grounds:

1. Its primary cost, which must have been from $1,200 to $1,500.
2. The cost of housing—a large room being necessary.
3. Expense of moving, installing and proper supervision. (The cost of its presentation at the Atlantic City meeting of the American Medical Association was over a hundred dollars.)
4. The short period of time during which it is maintained in any given place.

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ADVANTAGES OF THIS EXHIBIT

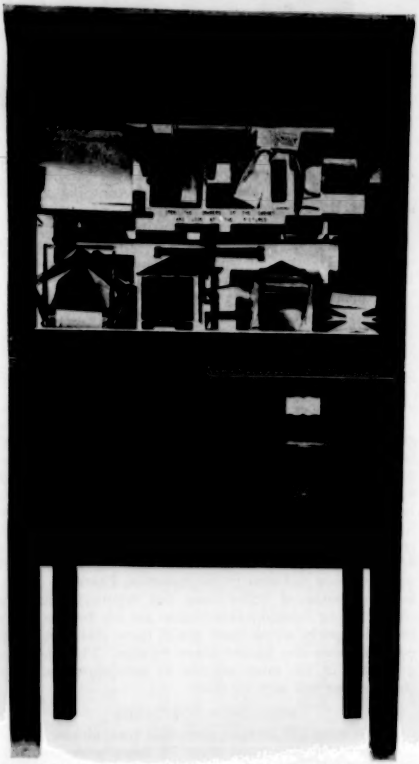
To overcome such objections as the foregoing the Scientific Exhibit Committee of the American Medical Association has for the past two years been endeavoring to interest sanitarians in developing a compact but comprehensive tuberculosis exhibit. Five were offered at the last meeting, each having distinct points of merit. The one herein described does not fulfill all requirements, but I believe has much to commend it. The advantages may be summarized as follows:

1. Compactness, neatness and stability: The cabinet takes up but little room and can stand with safety in any public building where crowds congregate.
2. Completeness: Although compact, it can be made to contain as much as the large exhibits—all that is necessary for the instruction of the public.
3. It requires no supervision, but tells its own story graphically.
4. Cost: If manufactured in large numbers, they could be sold at a figure sufficiently low to enable health boards to place them in railway stations, court-houses, public libraries and like places.
5. The continuity of effort would bring home to the people the lessons of the tuberculosis problem every day of the year.
6. The same cabinet might be used as occasion required for instruction on other sanitary matters.

PROBLEM OF PRODUCTION

To the many inquiries which have been made as to the cost of these cabinets and where they may be obtained, no satisfactory answer can be made. Two large concerns have made overtures looking to their manufacture. In order to secure the widest possible educational effect, it is desirable that the exhibits be sold almost at cost to insure their general use. Is it practicable to attain this end? Why should not the Board of Trustees of the Association, the Scientific Exhibit Committee or other regularly constituted representative undertake the supervision of this undertaking? Let them ascertain through experts the lowest figure at which these cabinets, equipped, can be made. Then secure an agreement from some reputable firm to market them at this price.

The Association's endorsement would insure large sale. Let the manufacturer pay the Association a royalty to cover the expense of proper supervision of the data that go into the cabinets. These would need to be varied to suit localities and states. Such supervision would insure the introduction of such matter only as



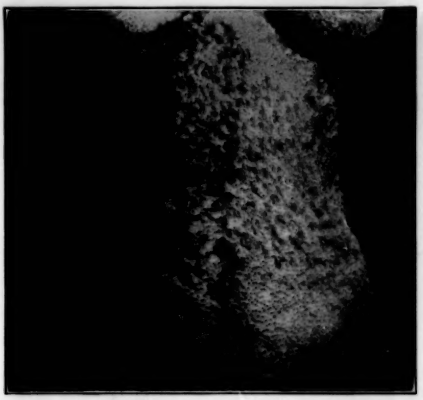
would be prudent and sane; sufficiently instructive to the lay mind on tuberculosis and other sanitary questions, but so tempered as not to excite ridicule or unnecessarily alarm the people on such matters. It would offer the Association an opportunity to render most effective cooperative aid to health authorities and, therefore, would prove of great service in the march of preventive medicine—a field in which the Association, as an organization, has as yet done but little.

311 Newton Claypool Building.

A CASE OF SYPHILIS RESEMBLING PITYRIASIS RUBRA PILARIS

HOWARD FOX, M.D.
NEW YORK CITY

The following case of miliary papular syphilis is of interest on account of its very close resemblance to the papular stage of pityriasis rubra pilaris. When seen in August, 1908, at the Vanderbilt Clinic, the patient, a widow of 30, presented a general eruption of the face, trunk and extremities. This consisted, for the most



A case of miliary papular syphilis in which the eruption simulated pityriasis rubra pilaris.

part, of small, conical, pin-head papules, capped with horny scales. There was no tendency for the lesions to become confluent and there were no signs of itching. On the face there were erythematous and scaly lesions that might have occurred with either of the diseases in question. There was no history of any genital sore, no glandular enlargement and no lesions of the mouth. The palms were thickened and scaly, but did not present the appearance characteristic of the early palmar syphilide. While the eruption simulated a pityriasis rubra pilaris very closely, it was noticed that there was a slight tendency of the papules to follicular grouping so characteristic of miliary papular syphilide. Further, the appearance of the backs of the phalanges generally noted in pityriasis rubra pilaris was absent.

When the case was first seen I had not begun to work with the Wassermann test, and a clinical diagnosis alone was possible. To show the great difficulty in diagnosis it may be said that a distinguished dermatologist of the city pronounced the case to be unquestionably one of pityriasis rubra pilaris. The patient was kept under observation for two weeks, at the end of which time the lesions began to show a tendency to become papulosquamous, and she was then put on antisyphilitic treatment; within a month the greater part of the eruption had disappeared. The patient then became somewhat irregular in attendance at the clinic,

and a few weeks later developed a rather severe iritis. For the privilege of reporting this case I am indebted to Dr. George T. Jackson.

616 Madison Avenue

AN OPERATING-TABLE

D. TOD GILLIAM, M.D.
COLUMBUS, O.

The special features of this table are:

1. An extension rod which slides in and out at the foot of the table.

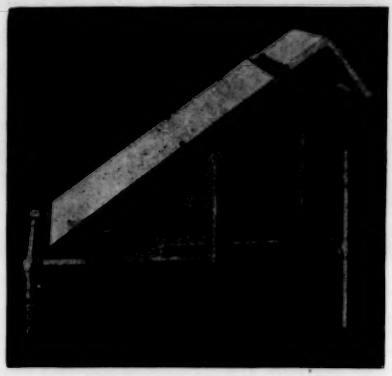
2. The leg-holders, which fit into the posts and which can be set at any height by means of a set-screw.

3. A revolving instrument tray which is attached to the leg-holder can be raised or lowered at will.

4. The body-lift, plain, or provided with movable side brackets to fix the kidney during operation and to keep the patient from rolling.

5. The shoulder-supports, small, neat and movable. They are hinged at the sides of the table and can be adjusted immediately for use or turned under the table out of the way.

6. A support for rectal treatment or for maintaining the knee-chest posture. This is effected by a strap extending from one leg-holder to the other at a proper height; the patient kneels on the shelf covered by a blanket, his body thrown forward over the strap.



An improved operating-table.

7. The shield between the anesthetist and operator, which fits snugly around the end of the table when not in use, and which can be raised to the vertical or any desired angle and fixed by a set-screw when needed.

The extension rod at the end of the table has many uses:

1. In vaginal or rectal operation a towel thrown over it protects the sutures from contact with the drop.

2. Drawn out a little further it makes a foot-rest for the patient in examination or treatment.

3. It holds a douche-pan in vaginal or rectal operations.

4. Pulled out so as to allow the legs to be lowered through it and strapped to the drop, the same douche-pan, placed between the end of the extension rod and the patient's knees, acts as a receptacle for soiled sponges in abdominal operations.

5. By placing the shelf from under the table on it and adjusting the extension rod to the length of the patient, a full-length table is obtained exactly fitted to his stature.

Every attachment is an integral part of the table and always at hand, there being no pieces to lay aside and gather up when needed. Also there are no hinged leaves or other unstable parts to the table.

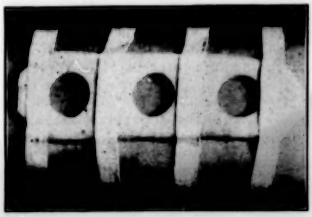
50 North Fourth Street.

A PROTECTOR FOR USE IN THE CUTANEOUS TEST FOR TUBERCULOSIS

R. L. SUTTON, M.D.
KANSAS CITY, MO.

In applying the cutaneous test for tuberculosis, the scarified surfaces, unless covered, are subjected to irritation and possible infection from without.

Protection usually is secured by the use of a soft, smooth dressing, as a linen or silk handkerchief, applied as a bandage directly over the wound. While this method serves very well in many instances, it is open to some objections. The cloth comes closely in contact



Protector for use in the cutaneous tuberculosis test.

with the excoriated surfaces and is liable to irritate, causing misleading inflammation; the dressing is difficult to keep in place, especially on the forearm (the part commonly selected); and the progress of the reaction can not be observed without removing the bandage.

I have found an oblong felt protector, like the one shown in the accompanying illustration, of considerable value. It is made on the same principle as the widely used vaccination pads, and the openings are covered with thin, transparent celluloid. The dressing is firmly held by four short, transverse strips of adhesive plaster.

518 Commerce Building.

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Special Article

SEVENTH ANNUAL SUMMARY OF FOURTH OF JULY INJURIES

For the seventh consecutive year we are presenting statistics of injuries received during the celebration of the Fourth of July, with particular reference to tetanus resulting from these injuries. Considerable effort has been made to secure reliable data, and all serious cases have been carefully investigated, so that, so far as the figures go, dependence may be placed on them. We have received thousands of letters from physicians in all parts of the country, reporting cases which otherwise could not have been included in the statistics. There are doubtless thousands of other cases not reported, although chiefly minor injuries. Our thanks are due for the many careful reports which have made these statistics more complete and the figures more reliable. The data are presented in the same manner as heretofore, in order that comparison may be made.

MORE CASES OF TETANUS

There were 150 tetanus cases this year, almost double the record of last year, when 76 cases were reported. This is the largest number since 1903, when there were 415 cases. It is significant to note that the number of blank cartridge wounds correspondingly increased from 816 last year to 1,095 this year, and that the states having the largest numbers of blank cartridge injuries have

also the largest numbers of tetanus cases (Table 5). It is interesting also to state that from blank cartridge wounds there was a higher percentage of deaths (10.2) than from gunshot wounds (6.1 per cent.).

The most common cause of the wound is the blank cartridge, and the usual site is the hand. The duration given is the number of days between the injury and death or recovery. Following the injury it required from 5 to 15 days before the symptoms of tetanus appeared, the average of all fatal cases being about 7 days. The longer

TABLE 1.—CASES OF TETANUS

Name.	Sex.	Age.	Cause of Wound.	Site of Wound.	Duration in Days.	Result.
CALIFORNIA						
Benbow	M	16	Bl. ctg	Hand	10	D.
Gardner	M	45	Firecracker	Hand	11	D.
DELAWARE						
Corbin	M	13	Bl. ctg	Hand.	(6) 8	D.
Smith	M	17	Bl. ctg	Hand	7	D.
FLORIDA						
Padgett	M	12	Bl. ctg	Hand	..	
IDAHO						
Hendricks	M	27	Gunshot	Ankle	10	D.
ILLINOIS						
Allen	M	11	Bl. ctg	Finger	(4)13	D.
Brown	M	14	Bl. ctg	Hand	9	D.
Bingaman	M	8	Bl. ctg	Hand	..	
Cook	M	13	Bl. ctg	Hand	9	D.
Ebright	M	14	Bl. ctg		7	D.
Ford	M	11	Bl. ctg	Hand	19	D.
German	M	8	Bl. ctg	Hand	12	D.
Gestel	M	13	Bl. ctg	Hand	7	D.
Granat	M	10	Bl. ctg	Thigh	(10)22	D.
Haffey	M	15	Bl. ctg	Hand	30	R.
Menson	M	9	Bl. ctg	Finger	7	D.
Morris	M	Boy.	Bl. ctg	Hand	..	
Muelford	M	11	Bl. ctg	Hand	(7) 9	D.
Neff	M	19	Bl. ctg	Hand	10	D.
Quinn	F	14	Bl. ctg	Hand	25	R.
Reed	M	13	Bl. ctg	Hand	..	
Reedliard	M	17	Bl. ctg	Hand	9	D.
Simmons	M	Boy.	Bl. ctg	Hand	13	D.
Stoffel	M	12	Bl. ctg	Thigh	(7) 9	D.
Verbelia	M	12	Bl. ctg	Hand	15	D.
INDIANA						
Callahan	M	11	Bl. ctg	Hand	..	D.
Czerwinski	M	12	Bl. ctg		18	D.
Dolson	M	13	Bl. ctg	Hand	9	D.
Kennedy	M	12	Bl. ctg		7	D.
Lacey	M	13	Bl. ctg	Hand	7	D.
Larok	M	15	Firecracker	Thumb	7	D.
McCoy	M	..	Bl. ctg		8	D.
Thompson	M	16	Bl. ctg	Leg	20	D.
Webster	M	13	Bl. ctg	Hand	8	D.
IOWA						
Parks	M	11	Bl. ctg	Hand	9	D.
KANSAS						
Allen	F	6	Bl. ctg	Hand	14	D.
Clark	M	16	Bl. ctg	Hand	11	D.
Miller	M	16	Gun-hot	Knee	7	D.
Van Meter	M	Boy.	Bl. ctg		..	D.
Williams	M	8	Bl. ctg	Penis	(7)10	D.
Yocum	M	9	Bl. ctg	Hand	9	D.
KENTUCKY						
Gill	M	8	Bl. ctg	Hand	..	..
MAINE						
Pitts	M	13	Bl. ctg	Hand	11	D.
MARYLAND						
Behrman	M	18	Bl. ctg	Finger	(10)48	R.
Cavey	M	14	Bl. ctg	Hand	14	D.
MASSACHUSETTS						
Blanchette, C.	M	15	Bl. ctg	Hand	(5)11	D.
Bouchard, A.	M	14	Bl. ctg	Hand	17	D.
Brown	F	24	Bl. ctg	Thigh	(15)20	D.
Joseph	M	20	Bl. ctg	Hand	(6) 9	D.
Killeen	M	29	Bl. ctg	Hand	7	D.
Nagen	M	14	Firecracker	Hand	(8)14	D.
Norton	M	11	Bl. ctg	Hand	(7)50	R.
Silva	M	23	Bl. ctg	Hand	15	R.
MICHIGAN						
Ashlund	M	12	Bl. ctg	Hand	9	D.
Barnett	M	13	Bl. ctg	Hand	(7)12	D.
Cole	M	10	Bl. ctg	Hand	7	D.
Damm	M	15	Firecracker		16	D.
Lawler	M	11	Bl. ctg	Hand	..	
McRorie	M	12	Bl. ctg	Hand	..	D.
Morrison	M	13	Bl. ctg		9	D.
Schaff	M	10	Bl. ctg	Hand	7	D.
Sheridan	M	12	Bl. ctg		..	
Stewart	M	15	Bl. ctg	Hand	..	D.
Straffon	M	16	Bl. ctg	Hand	18	D.

Name.	Sex.	Age.	Cause of Wound.	Site of Wound.	Duration in Days.	Result.
MISSOURI						
Adair	M	Boy.	Powder expl.	Arm	18	D.
Cooper	M	14	Bl. ctg	Hand	10	D.
Enloe	M	13	Bl. ctg	Hand	9	D.
Hogan	F	26	Bl. ctg	Hand	..	D.
Judson	M	10	Bl. ctg	Hand	7	D.
Neland	M	10	Bl. ctg	Hand	(5)11	D.
Solomon	M	10	Bl. ctg	Hand	11	D.
Taylor	M	11	Bl. ctg	Hand	11	D.
MONTANA						
Kelly	M	23	Bl. ctg	Hand	10	D.
Muiholland	M	16	Bl. ctg	Hand	..	D.
Staten	M	7	Bl. ctg	Hand	10	D.
NEBRASKA						
Diarsy	M	12	Rocket	Hand	..	D.
Pop	M	Adult.	Bl. ctg	Hand	10	D.
Watkins	M	13	Bl. ctg	Hand	9	D.
NEW HAMPSHIRE						
Boyle	M	17	Bl. ctg	Hand	(7) 9	D.
NEW JERSEY						
Campbell	M	12	Bl. ctg	Hand	(6)14	D.
Da Costa	M	..	Gunshot	Finger	10	D.
Fischer	M	14	Bl. ctg	Hand	7	D.
Francke	M	13	Cannon	Thigh	10	D.
Frisco	M	13	Fireworks		..	
Goldstein	M	8	Bl. ctg		9	D.
Guthrie	M	9	Bl. ctg	Hand	(6) 8	D.
Hunt	M	14	Bl. ctg	Hand	8	D.
Jasperino	M	14	Bl. ctg	Hand	18	R.
Keley	M	13	Bl. ctg	Hand	7	D.
Long	M	12	Bl. ctg	Hand	8	D.
McIntyre	M	14	Bl. ctg	Finger	10	D.
Martin	M	..	Firecracker	Hand	..	
Miner	M	14	Bl. ctg	Hand	(8)10	D.
Penn	M	13	Bl. ctg	Hand	8	D.
Riccio	M	12	Bl. ctg	Hand	(5)11	D.
Walters	M	12	Bl. ctg	Hand	7	D.
Weigel	M	11	Bl. ctg	Hand	30	R.
Wilson	M	12	Bl. ctg	Hand	(12)..	R.
NEW YORK						
Brightman	M	13	Bl. ctg	Hand	12	D.
Jeriorski	M	11	Bl. ctg	Hand	30	D.
Last	M	10	Bl. ctg	Hand	7	D.
Mafredonia	M	10	Bl. ctg	Hand	..	D.
Ohlowald	M	14	Bl. ctg	Hand	9	D.
Otis	M	8	Bl. ctg	Hand	6	D.
Schroeder	M	15	Bl. ctg	Hand	11	D.
Schultz	M	31	Gunshot	Thigh	(7) 9	D.
Stanway	M	18	Bl. ctg	Finger	14	D.
Tat'r	M	12	Firecracker	Hand	(8)10	D.
Wiegland	M	11	Bl. ctg	Hand	..	D.
OHIO						
Combow	M	14	Powder expl.	Hand	16	R.
Getroast	M	12	Bl. ctg	Hand	10	D.
Lewe	M	11	Bl. ctg	Hand	(7)10	D.
Manuel	M	12	Bl. ctg	Hand	8	D.
Marcum	M	12	Bl. ctg	Hand	..	D.
Parkos	M	13	Bl. ctg	Finger	(5)14	D.
Seaman	M	13	Fireworks		18	D.
Sells	M	10	Bl. ctg	Hand	10	D.
Sliman	M	15	Bl. ctg	Hand	..	
Stokely	M	10	Bl. ctg	Hand	9	D.
Tindall	M	14	Bl. ctg		12	D.
Underwood	M	Boy.	Bl. ctg	Hand	16	D.
PENNSYLVANIA						
Breich	M	18	Bl. ctg	Hand	8	D.
Coles	M	15	Bl. ctg	Leg	6	D.
Donovan	M	13	Bl. ctg		15	D.
Farber	M	18	Bl. ctg	Finger	22	D.
Houpt	M	15	Bl. ctg	Groin	..	D.
Koslovski	M	11	Bl. ctg	Hand	11	D.
Kowalick	M	6	Bl. ctg	Hand	..	..
Maxwell	M	13	Bl. ctg	Finger	12	D.
Scott	M	Boy.	Firecracker	Leg	..	
Werts	M	13	Bl. ctg	Finger	10	D.
SOUTH DAKOTA						
Phebus	M	11	Bl. ctg	Finger	9	D.
WASHINGTON						
Brown	M	11	Bl. ctg	Hand	..	..
Nelson	M	13	Bl. ctg	Hand	7	D.
Perry	M	14	Bl. ctg	Hand	..	..
Roth	M	10	bl. ctg	Hand	6	D.
WEST VIRGINIA						
Comedy	M	13	Bl. ctg	Hand	..	D.
Llewellyn	M	9	Bl. ctg	Hand	16	D.
Parshall	F	15	Firecracker	Hand	..	..
Robinson	M	10	Bl. ctg	Hand	6	D.
WISCONSIN						
Briscoe	M	12	Bl. ctg	Finger	(6) 8	D.
Darling	M	11	Bl. ctg	Hand	11	D.
Dokenoch	M	15	Bl. ctg	Hand	9	D.
Golden	M	11	Bl. ctg	Hand	8	D.
Micka	M	13	Firecracker	Hand	(3)13	D.
Peterson	M	18	Bl. ctg	Hand	8	D.
Rhein	F	11	Bl. ctg	Hand	9	D.
Rutz	F	30	Bl. ctg		8	D.
Zettman	M	..	Powder expl.		18	D.

Figures in parentheses show incubation period.

incubation period doubtless indicates a less virulent germ and, therefore, a better chance for recovery by treatment. In one case the symptoms began on the fourth day, while in another case they appeared on the fifteenth. Following the appearance of the symptoms death resulted in from 2 to 9 days, the average of all cases reported this year being about 3½ days. In 4 cases the entire duration of time between inoculation and death was six days or less. The average duration for all fatal cases reported was 10½ days. The list of tetanus cases is given in Table 1.

Tetanus cases occurred in 25 different states, or in 5 more than last year, and the same as in 1906. For the fifth consecutive year Illinois reports the largest number, having 20 cases this year, 12 each in 1908 and 1907, 16 in 1906 and 20 in 1905. In 1903 and 1904 Pennsylvania reported the highest numbers. For the fourth consecutive year New Jersey reports the next highest number, having 19 cases this year, 10 last year, 8 in 1907 and 10 in 1906. Ohio reports 12 cases this year. Michigan and New York each had 11 cases and Pennsylvania 10. Table 2 gives a comparison of the number of cases in each state for the seven years.

TABLE 2.—COMPARISON WITH PREVIOUS YEARS

	1903	1904	1905	1906	1907	1908	1909
Alabama	..	..	1	..	..	..	..
Arizona	..	..	..	..	1	..	..
California	2	4	4	3	1	..	2
Colorado	4	..	1	..	..	..	..
Connecticut	3	..	3	..	4	1	..
Delaware	..	..	1	1	1	..	2
Dist. Columbia	1	..	..	..	..	..	..
Florida	..	..	..	..	..	..	1
Georgia	..	..	..	..	1	..	..
Idaho	1	..	..	..	..	..	..
Illinois	49	15	20	16	12	12	20
Indiana	11	6	3	8	2	..	9
Iowa	14	2	3	4	4	1	1
Kansas	11	1	..	..	2	1	6
Kentucky	4	2	..	1	..	1	1
Louisiana	..	..	..	..	..	..	..
Maine	2	4	1	1	..	1	1
Maryland	1	..	1	1	..	..	2
Massachusetts	16	5	7	3	2	5	8
Michigan	29	7	9	4	4	2	11
Minnesota	15	2	2	2	2	..	..
Missouri	29	1	3	3	1	5	8
Montana	2	1	1	..	1	..	3
Nebraska	4	3	3	1	..	1	3
New Hampshire	2	..	..	1	..	..	1
New Jersey	5	9	3	10	8	10	19
New York	36	9	6	8	4	9	11
North Dakota	..	..	..	..	..	..	..
Ohio	67	9	5	1	6	7	12
Oklahoma	1	..	1	..	..	1	..
Oregon	2	..	..	1	1	1	..
Pennsylvania	82	17	12	5	7	7	10
Rhode Island	3	..	..	1	..	..	..
South Carolina	..	..	..	..	..	..	..
South Dakota	..	..	..	..	..	1	1
Tennessee	..	..	..	..	..	..	..
Texas	..	..	..	..	2	..	..
Utah	..	1	1	..	..	..	..
Vermont	3	2	..	2	..	..	..
Washington	2	1	..	..	2	4	4
West Virginia	3	..	..	2	..	1	4
Wisconsin	10	4	13	2	3	5	9
Wyoming	..	..	..	1	..	..	..
Total	415	105	104	89	73	76	150
States having cases	30	21	23	25	23	20	25

TABLE 3.—CAUSES OF TETANUS CASES.

Year.	Blank Cartridge.	Giant Cracker.	Cannon.	Firearms.	Powder, etc.	Total
1903	363	17	5	3	27	415
1904	74	18	5	1	7	105
1905	65	17	4	5	13	104
1906	54	17	1	7	10	89
1907	52	8	6	4	3	73
1908	58	5	4	3	6	76
1909	130	9	1	4	6	150

TABLE 4.—CAUSES OF DEATHS ASIDE FROM TETANUS

Year.	Gunshot.	Fire from Fireworks.	Powder, Torpedoes, etc.	Giant Crackers.	Cannon.	Other Causes.	Total.
1905	37	23	6	5	7	17	95
1906	38	18	18	3	3	3	83
1907	20	31	13	13	3	22	102
1908	30	22	19	23	7	7	108
1909	17	37	16	7	7	6	90

Blank cartridges still continue to be responsible for the great majority of tetanus cases, 130, or 86.5 per cent. of all cases this year, being due to that cause, as compared with 73.3 per cent. last year and 71 per cent. in 1907 and 60 per cent. in 1906. Nine cases this year resulted from giant firecracker injuries, 4 cases from gunshot wounds, 1 case from toy cannon injury and 6 from other forms of fireworks.

Of the 150 cases of tetanus due to Fourth of July injuries this year, 125, or 84 per cent., were reported to have ended fatally, as compared with 72 per cent. of deaths last year, 85 per cent. in 1907 and 84 per cent. in 1906.

TABLE 6.—TOTAL DEATHS AND ACCIDENTS BY STATES DURING SEVEN YEARS

	1903	1904	1905	1906	1907	1908	1909
Alabama	2	7	1	2	1	1	1
Arizona	..	..	4	5	2	5	3
Arkansas	..	..	4	..	..	5	1
California	100	138	142	96	121	136	89
Colorado	39	44	26	23	25	13	18
Connecticut	162	133	132	169	63	107	86
Delaware	1	5	14	8	16	12	13
Dist. Columbia	2	10	24	5	12	21	..
Florida	1	2	2	..	..	..	1
Georgia	..	..	..	4	2	4	..
Idaho	..	4	3	3	4	4	2
Illinois	366	423	542	508	468	558	546
Indiana	160	211	217	250	..	255	164
Iowa	168	137	328	255	231	174	91
Kansas	63	88	56	61	64	72	86
Kentucky	30	72	17	21	18	33	17
Louisiana	..	2	3	7	8	4	..
Maine	31	32	29	15	11	16	22
Maryland	21	22	13	10	23	21	10
Massachusetts	357	193	467	329	168	430	430
Michigan	144	157	288	193	163	203	177
Minnesota	157	102	174	95	95	65	69
Mississippi	..	..	..	2	2	1	..
Missouri	147	84	218	325	299	375	352
Montana	5	17	40	3	6	11	9
Nebraska	46	63	43	47	58	46	42
Nevada	..	1	2	..	1	4	..
New Hampshire	37	23	9	29	13	13	23
New Jersey	228	204	350	398	402	472	488
New Mexico	..	4	5	1	6	..	1
New York	522	549	566	681	752	647	897
North Carolina	..	..	1	1	..	..	..
North Dakota	10	8	29	11	8	13	4
Ohio	443	327	329	490	375	543	323
Oklahoma	1	3	7	14	194	9	12
Oregon	16	13	9	11	5	9	21
Pennsylvania	533	744	721	909	491	987	986
Rhode Island	64	30	11	21	39	39	42
South Carolina	..	..	..	1	..	..	4
South Dakota	4	10	15	5	8	10	9
Tennessee	4	1	5	6	4	5	4
Texas	2	2	4	11	7	11	4
Utah	23	22	25	18	30	12	18
Vermont	45	14	10	14	18	19	12
Virginia	..	11	5	5	..	2	4
Washington	21	25	15	25	23	38	32
West Virginia	19	16	34	64	27	29	35
Wisconsin	190	215	230	155	150	187	157
Wyoming	1	2	8	3	..	1	1

TETANUS FROM OTHER THAN FOURTH OF JULY INJURIES

Besides the cases of lockjaw due directly to Fourth of July injuries, many other cases were reported this year which occurred during the Fourth of July season, but which were due to penetrating injuries from nails or splinters, to crushing injuries or other causes. There were 128 such cases reported this year, as compared with 166 last year and 94 in 1907. The report of these cases emphasizes the fact that in the treatment of all penetrating wounds the possibility of tetanus should be borne in mind and prophylactic measures employed.

Of the 128 cases of tetanus due to other than Fourth of July injuries, Pennsylvania reported 21, Illinois 18, Ohio 13 and New York 12. Altogether 25 states reported cases, as compared with 28 last year. Table 8 on page 953 shows these cases by states and will be interesting in comparison with Table 2.

DEATHS FROM FIREWORKS, ASIDE FROM TETANUS

Besides the 125 deaths due to tetanus, 90 persons were killed by various forms of fireworks, making a total of

V 53 1909

215 deaths, an increase of 52 over last year and 57 more than in 1906. Seventeen were killed outright this year by firearms, 16 were killed by explosions of powder, 7 by giant firecrackers, 7 by toy cannon and 7 by various causes, such as blood poisoning, by sky-rockets, chemicals, etc., while 37 were literally burned to death by fire from fireworks, many of which were caused by the so-called "harmless" varieties of fireworks. As heretofore, all accidents not directly due to the discharge or handling of fireworks or other means of noise production on or about the Fourth of July have been omitted. Table 4 shows a comparison of the causes of death other than from tetanus for the past five years.

In Table 5 will be found a summary of all injuries, including tetanus, and of all causes, arranged by states. Beneath the totals at the bottom of the table are given the totals for the six previous years in order that comparisons may be made. The grand totals are also given. Table 6 is arranged to show a more ready comparison by states of the total deaths and accidents for the six years.

Pennsylvania holds the blackest record with 986 casualties, New York coming second with 898, followed by Illinois with 547, New Jersey with 488 and Massachusetts with 430. Altogether there were 5,307 accidents this year, or 316 less than last year.

NON-FATAL INJURIES

There were 5,092 non-fatal injuries this year, or 368 less than last year. There were 16 people totally blinded this year, being 5 more than last year, but 9 less than the highest number in 1905. There were 36 who lost one eye each, 41 who lost legs, arms or hands, while 176 persons lost one or more fingers. The giant firecracker holds the first rank as a cause of mutilating wounds and is responsible for the majority of losses of eyes, hands and fingers during the annual celebration of the Fourth. In the awfulness of its destruction, the giant firecracker is equaled in a few instances only by the explosions of home-made cannon. The fact that the wounds made by the giant firecracker are so lacerated and laid open is probably the reason it does not

TABLE 5.—SUMMARY BY STATES OF JULY FOURTH CASUALTIES

States.	Deaths.			Injuries.							Causes of all cases aside from tetanus.						
	From tetanus.	From other causes.	Total deaths.	Loss of sight.	Loss of one eye.	Loss of legs, arms or hands.	Loss of fingers, one or more.	Other injuries.	Total non-fatal injuries.	Total persons dead or injured.	Blank cartridge.	All other causes.	Blank cartridge	Firecrackers.	Cannon.	Firearms.	Powder and fireworks.
Alabama	..	..	..	..	..	..	..	1	1	1	..	..	..	1	..	..	..
Arizona	..	..	..	..	..	..	1	2	3	3	..	..	..	1	1	..	1
Arkansas	..	..	..	..	..	..	..	1	1	1	..	..	..	1	..	..	..
California	2	1	3	..	2	..	1	83	86	89	1	1	11	33	20	1	22
Colorado	..	1	1	..	..	..	1	16	17	18	..	..	2	4	1	3	8
Connecticut	..	3	3	..	..	..	4	79	83	86	..	..	28	24	14	11	9
Delaware	2	1	3	..	..	..	..	10	10	13	2	..	..	5	..	2	4
Dist. of Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Florida	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..
Georgia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Idaho	1	..	1	..	..	..	..	1	1	2	..	1	..	1	..	..	..
Illinois	15	3	18	2	7	2	14	504	529	547	20	..	168	163	39	44	113
Indiana	9	2	11	..	..	7	2	143	152	163	8	..	35	57	10	10	42
Iowa	1	..	1	..	3	2	..	83	80	91	1	..	7	52	9	1	21
Kansas	6	..	6	..	..	..	1	79	80	86	5	1	30	22	5	4	19
Kentucky	..	1	1	..	..	1	..	15	16	17	1	..	..	3	6	3	4
Louisiana	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maine	1	..	1	..	..	..	1	20	21	22	1	..	2	6	8	1	4
Maryland	1	..	1	..	..	..	..	9	9	10	2	..	1	2	2	1	2
Massachusetts	5	11	16	..	3	1	16	394	414	430	7	1	113	139	24	18	128
Michigan	9	5	14	3	3	3	8	146	163	177	10	1	34	64	16	9	43
Minnesota	..	3	3	..	..	..	..	66	66	69	..	..	3	23	2	3	38
Mississippi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Missouri	8	6	14	..	..	..	2	336	338	352	7	1	146	69	30	40	59
Montana	3	..	3	..	..	1	5	6	9	12	4	..	4	2	..	..	..
Nebraska	3	1	4	..	2	1	1	34	38	42	2	1	9	9	1	1	19
Nevada	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Hampshire	1	..	1	..	..	..	..	22	22	23	1	..	3	7	7	1	4
New Jersey	14	7	21	2	3	6	21	432	467	488	15	4	126	131	60	32	120
New Mexico	..	..	..	..	..	..	..	1	1	1	..	..	1	..	..	..	..
New York	11	10	20	2	4	6	41	824	877	898	9	2	139	244	62	88	354
North Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
North Dakota	..	..	..	..	..	..	..	4	4	4	..	..	..	1	..	..	3
Ohio	10	3	13	..	3	4	11	292	310	323	10	2	65	139	36	16	55
Oklahoma	..	..	..	..	1	..	..	11	12	12	..	..	5	7	..	..	..
Oregon	..	..	..	..	..	..	..	21	21	21	..	..	2	15	3	..	1
Pennsylvania	8	19	27	6	3	5	42	903	959	986	9	1	114	258	49	35	520
Rhode Island	..	3	3	..	..	1	..	38	39	42	..	..	11	8	4	3	16
South Carolina	..	..	..	..	..	..	..	4	4	4	..	..	..	1	..	..	3
South Dakota	1	..	1	..	..	..	..	8	8	9	1	..	3	2	..	1	2
Tennessee	..	..	..	..	..	..	..	4	4	4	..	..	1	1	..	..	2
Texas	..	..	..	..	..	..	..	4	4	4	..	..	1	..	2	..	1
Utah	..	2	2	..	..	..	..	16	16	18	..	..	2	10	..	..	6
Vermont	..	..	..	..	..	..	..	12	12	12	..	..	4	6	1	..	1
Virginia	..	1	1	..	..	..	..	3	3	4	..	..	..	1	..	..	4
Washington	2	3	5	1	1	..	1	26	29	32	4	..	5	17	2	..	4
West Virginia	3	2	5	..	..	2	1	27	30	35	3	1	2	17	6	1	5
Wisconsin	9	4	13	..	1	..	1	142	144	157	7	2	18	70	8	9	43
Wyoming	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	1	..
1909 totals	125	90	215	16	36	41	176	4,823	5,093	5,307	136	20	1,095	1,614	427	341	1,680
1908 totals	55	108	163	11	93	57	184	5,115	5,460	5,623	58	18	816	1,793	399	481	2,058
1907 totals	62	102	164	12	75	57	237	3,868	4,249	4,413	52	21	554	1,489	267	502	1,528
1906 totals	75	83	158	22	72	56	227	4,931	5,308	5,466	54	35	925	1,690	408	532	1,822
1905 totals	87	95	182	25	106	80	221	4,562	4,994	5,176	65	39	744	1,775	474	404	1,675
1904 totals	91	92	183	19	61	61	208	3,637	3,986	4,169	74	25	931	1,268	508	406	1,056
1903 totals	406	60	466	10	75	54	174	3,670	3,983	4,449	363	29	1,369	1,152	397	236	731
Grand totals	901	630	1,531	115	518	406	1,427	30,606	33,073	34,603	796	187	6,374	10,781	2,880	2,902	10,550

cause more lockjaw. Then, also, these cases are taken to the physician, while the supposedly insignificant wounds made by blank cartridges are neglected. This year 1,614 accidents, including 7 deaths and 9 cases of lockjaw, were due to the giant firecracker.

Firearms caused 341 accidents, including 17 killed and 4 cases of lockjaw. The percentage of deaths was 6.1. Of the total number thus injured, 132 were struck by stray bullets from the reckless shooting of firearms by others and 5 deaths resulted. Toy cannons caused 427 injuries, including 7 killed and one case of tetanus.

TOTALS IN CHIEF CITIES

Table 7 shows the number reported killed and injured in the largest cities during the past three years. The population figures were taken from the U. S. Census Bureau's estimate of 1906. This table will be of special interest from year to year, since it will show the results of the adoption and enforcement of ordinances prohibiting or restricting the use of fireworks. Philadelphia had 9 deaths this year, the largest number reported for any one city, New York had 7 deaths, Boston, Pittsburg and

TABLE 7.—NUMBER REPORTED KILLED AND INJURED IN OUR LARGEST CITIES IN THREE YEARS

City.	Population, Census Bureau Est. 1906.	1907		1908		1909		Totals.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New York, N. Y.	4,113,043	22	422	11	316	7	559	40	1,297
Chicago, Ill.	2,049,185	16	151	12	202	..	118	28	471
Philadelphia, Pa.	1,441,735	7	248	6	426	9	508	22	1,182
St. Louis, Mo.	649,320	3	189	4	229	4	163	11	581
Boston, Mass.	602,278	3	59	6	196	5	167	14	416
Baltimore, Md.	553,669	..	5	1	10	..	5	1	19
Cleveland, O.	460,327	3	63	12	93	..	4	15	160
Buffalo, N. Y.	381,819	..	18	3	11	..	33	3	62
Pittsburg, Pa.	373,922	15	88	..	39	5	48	15	106
San Francisco, Cal.	364,667	..	..	..	11	..	12	..	23
Detroit, Mich.	353,563	2	46	..	10	2	46	4	102
Cincinnati, O.	345,230	2	89	1	112	3	86	6	287
Milwaukee, Wis.	317,903	2	93	..	70	..	78	2	241
New Orleans, La.	314,146	..	8	..	4	..	..	..	12
Washington, D. C.	307,716	..	12	..	21	..	..	..	33
Newark, N. J.	289,634	1	129	2	81	1	150	4	360
Minneapolis, Minn.	273,825	..	13	..	10	1	24	1	47
Jersey City, N. J.	257,952	..	31	5	34	1	14	6	79
Louisville, Ky.	226,129	..	13	..	10	1	10	1	33
Indianapolis, Ind.	219,154	1	31	1	14	1	35	3	80
St. Paul, Minn.	203,815	..	20	..	13	..	18	..	51
Providence, R. I.	203,243	..	20	1	21	..	13	1	54
Rochester, N. Y.	185,703	..	12	..	10	..	5	..	27
Kansas City, Mo.	182,367	1	46	..	55	4	67	5	168
Toledo, O.	159,980	1	5	..	8	2	3	3	16
Denver, Colo.	151,920	..	8	..	13	..	12	..	33
Columbus, O.	145,414	5	36	..	5	1	19	6	60
Alleghany, Pa.	145,240	..	..	..	..	..	..	..	..
Worcester, Mass.	130,078	1	6	2	26	1	42	4	68
Memphis, Tenn.	125,078	..	1	..	3	..	4	..	8
Omaha, Nebr.	124,167	..	25	..	10	1	17	1	52
New Haven, Conn.	121,227	..	2	..	..	..	15	..	17
Syracuse, N. Y.	118,880	..	20	..	14	..	13	..	47
Scranton, Pa.	118,092	..	5	1	17	1	29	2	51
St. Joseph, Mo.	118,004	1	23	1	41	1	24	3	88
Paterson, N. J.	112,801	1	29	2	31	1	45	4	105
Portland, Ore.	109,884	..	2	..	3	..	16	..	21
Fall River, Mass.	105,942	..	..	..	12	..	19	..	31
Atlanta, Ga.	104,984	1	4	..	3	..	..	1	7
Seattle, Wash.	104,169	1	3	..	1	3	10	4	14
Los Angeles, Cal.	102,479	..	35	..	40	..	26	..	101
Dayton, O.	100,799	..	11	..	14	..	4	..	29
Grand Rapids, Mich.	99,784	..	20	1	20	..	3	1	53
Cambridge, Mass.	98,544	..	..	..	17	..	..	..	17
Albany, N. Y.	98,537	1	24	..	37	..	31	1	92
Hartford, Conn.	95,882	..	18	..	18	..	11	..	47
Lowell, Mass.	95,173	..	23	..	..	..	18	..	41
Reading, Pa.	91,141	..	17	..	13	..	17	..	47
Richmond, Va.	87,246	..	..	..	..	1	1	1	1
Trenton, N. J.	86,355	..	38	1	17	1	58	2	113
Wilmington, Del.	85,140	1	14	..	13	3	9	4	36
Camden, N. J.	84,849	..	16	..	29	4	14	4	59
Nashville, Tenn.	84,703	..	2	..	..	..	..	..	2
Bridgeport, Conn.	84,274	..	1	..	27	..	21	..	49
Lynn, Mass.	78,748	..	3	..	11	3	16	3	30
Des Moines, Ia.	78,323	1	31	..	41	..	13	1	85
Kansas City, Kan.	77,912	1	10	..	17	..	33	1	60
New Bedford, Mass.	76,746	..	..	..	3	..	..	..	3
Troy, N. Y.	76,513	..	..	2	18	..	16	2	34
Springfield, Mass.	75,836	..	21	1	36	1	9	2	66
Oakland, Cal.	73,812	..	9	..	..	..	8	..	17
Lawrence, Mass.	71,548	..	11	1	..	5	22	6	33
Somerville, Mass.	70,798	..	..	..	..	..	1	..	1
Savannah, Ga.	68,596	..	..	..	..	..	..	..	..
Duluth, Minn.	67,337	..	13	..	9	2	10	2	32
Norfolk, Va.	66,931	..	..	..	..	..	..	..	..
Hoboken, N. J.	66,689	..	1	1	24	..	7	1	32
Peoria, Ill.	66,065	..	8	..	27	1	22	1	57
Utica, N. Y.	65,099	..	18	..	10	..	5	..	33
Manchester, N. H.	64,703	..	3	..	1	1	5	1	9
Yonkers, N. Y.	64,110	..	32	..	5	..	8	..	45
Evansville, Ind.	63,957	..	5	..	12	..	6	..	23
San Antonio, Tex.	62,711	..	..	..	1	..	..	..	1
Elizabeth, N. J.	62,185	..	43	..	72	..	37	..	152
Schenectady, N. Y.	61,919	..	4	..	20	..	8	..	32
Waterbury, Conn.	61,963	2	8	..	14	..	5	2	27
Salt Lake City, Utah	61,202	..	15	..	6	2	14	2	35
Wilkesbarre, Pa.	60,121	1	..	3	38	1	15	5	53
Erie, Pa.	59,993	..	..	..	1	..	4	..	5
Houston, Tex.	58,132	..	..	..	1	..	1	..	2
Charleston, S. C.	56,317	..	..	..	..	..	..	..	..
Harrisburg, Pa.	55,735	..	23	1	71	..	22	1	116
Tacoma, Wash.	55,392	2	4	1	3	..	3	3	10
Portland, Me.	55,167	1	2	..	..	..	2	1	4
Totals		94	2,458	83	2,880	80	2,935	257	8,253
Totals Elsewhere		70	1,791	80	2,600	135	2,156	285	6,547
Grand Totals		164	4,249	163	5,480	215	5,091	542	14,800

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Lawrence, Mass., each had 5, while 4 each were reported for St. Louis, Kansas City, Mo., and Camden, N. J.

Of non-fatal accidents this year, New York leads with 559, followed by Philadelphia with 508, Boston with 167, St. Louis with 163, Newark with 150, and Chicago with 118.

RESULTS OF RESTRICTIVE LEGISLATION

For several years Baltimore has practically prohibited all forms of fireworks, and the small number of casualties shown in Table 7 are the result. In fact, it has been stated that, even of the few accidents reported, most came from suburbs and outlying districts which were not directly under the city ordinances.

Immediately following last year's celebration, when 12 persons were killed by fireworks, Cleveland passed a prohibitive ordinance, in spite of the protests of fireworks dealers. The wisdom of that legislation is shown by the fact that no deaths were reported this year and only four minor injuries.

Washington, our national capital, has set a splendid example by enforcing a prohibitory ordinance, with the result that this year not a single accident was reported.

Instead of prohibiting all fireworks, Chicago passed a restrictive ordinance limiting the sale of fireworks to a few days preceeding July 5 and limited the size of firecrackers. The use of blank cartridge pistols was strictly forbidden. Comparatively few licenses to sell fireworks were issued, and, according to reports, the ordinance was well enforced. No deaths were reported this year as compared with 12 last year and 16 in 1907. The number of injuries still remains high, although it is a splendid showing compared with Philadelphia, New York and other cities, where very little, if any, restrictive efforts were made. Restrictive ordinances were reported for other cities, but no such marked results were apparent.

WHERE THE RESPONSIBILITY RESTS

The responsibility for the vast majority of deaths and injuries clearly rests with city governments, and this annual carnage could doubtless be prevented without extreme difficulty. Prohibitory ordinances are most effective and permanent, as shown by the results in Baltimore, Washington, San Francisco and Cleveland, and even restrictive ordinances, if strictly enforced, are rather effective, as shown by the results in Toledo, Chicago and other cities. But the enforcement of restrictive measures is more difficult and requires more constant vigilance on the part of the police. By the sound, it is difficult to know whether an explosion is due to a firecracker 3 inches long or to one 5 inches long, or whether it is due to some other forbidden form of fireworks. Under the prohibitory ordinance any explosion would be recognized at once as a violation of the law. Again, the smaller sized firecrackers which have been considered so harmless caused the clothing to catch fire in many of the 37 instances where persons, mostly girls and young children, were burned to death. Even the "harmless" sparkler caused three of these deaths, which were far more agonizing than if caused by gunshot wounds.

The police commissioner of one or our large eastern cities is reported to have openly declared himself in sympathy with the noise, the tumult and the shooting of firecrackers in the celebration of the Fourth of July. When the results of the celebration in that city were known, it was found that 5 lives had been destroyed and 167 persons were injured, some of whom had eyes blown out, hands, fingers and ears torn off, or were otherwise marred for life. Of the 5 who were killed, 2 were shot down and 3 became human torches, burned in order that the people in that city might "warm up and let the world know they were alive!"

With what relief, therefore, we turn to another but somewhat smaller eastern city, Springfield, Mass., which has set a glorious example in the proper celebration of our national birthday and has taken advantage of America's greatest opportunity to develop true patriotism and to bring closer together the various nationalities which make up so large a portion of its population. The Springfield celebration, which meanwhile cost the committee only $3,500 in contributions, has already been so well described[1] that detailed mention is unnecessary.

ANNUAL PREPARATION FOR CASUALTIES

Thousands of dollars are being spent each year in preparation for the casualties of July 4. So extensive has become this preparation that, as some one has pointedly remarked, it resembles the preparation for a great battle. How much more enjoyment would result as well as uplift and profit if the same energy were expended in preparation for more modern methods of celebration!

TABLE 8.—CASES OF TETANUS FROM OTHER CAUSES

	1908.	1909.		1908.	1909.
Alabama	..	..	Nevada	..	..
Arizona	..	..	New Hampshire	..	..
Arkansas	2	..	New Jersey	7	8
California	4	4	New Mexico	..	1
Colorado	3	..	New York	17	12
Connecticut	2	2	North Carolina	1	..
Delaware	2	1	North Dakota	1	..
Dist. of Columbia	..	..	Ohio	23	13
Florida	2	..	Oklahoma	..	..
Georgia	..	1	Oregon	..	1
Idaho	..	..	Pennsylvania	21	21
Illinois	17	18	Rhode Island	..	1
Indiana	6	4	South Carolina	..	..
Iowa	2	7	South Dakota	2	2
Kansas	4	..	Tennessee	3	..
Kentucky	5	5	Texas	4	1
Louisiana	1	..	Utah	..	..
Maine	..	..	Vermont	..	..
Maryland	3	..	Virginia	4	1
Massachusetts	3	5	Washington	2	..
Michigan	4	5	West Virginia	..	1
Minnesota	4	2	Wisconsin	5	4
Mississippi	..	..	Wyoming	..	..
Missouri	12	5			
Montana	..	..	Total	166	128
Nebraska	..	3	States reporting cases	29	25

RADICAL ACTION NEEDED

Our annual sacrifice in the celebration of the Fourth may be compared to the facts related about the Minotaur of old to whom the Greeks were required to sacrifice periodically large numbers of the fair youths and maidens of Athens. America suffers by the comparison, however, since our sacrifice is annual, whereas that of the Athenians was only once in nine years! Radical measures were used then when Theseus slew the Minotaur. Radical measures are needed now and the barbarous Fourth should go. The sentiment favoring the enlightened celebration is rapidly on the increase, but hoodlums require more than coaxing—they must be handled by the police. More restrictions were placed on the use of fireworks this year than ever before. The celebration in many cities was limited to the one day and the sale of fireworks was limited to 2 or 3 days. Many forms of fireworks were prohibited in many cities and zones of quiet were provided for hospitals. And results were obtained, since from all parts of the country come reports that there was never a more quiet and orderly celebration. Although the deaths and injuries are as many as ever, there is nevertheless much to encourage those who are working for truly patriotic methods of celebrating our national independence. They should persevere in their efforts.

1. Atlantic Monthly, June, 1909.

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[For other information see second page following reading matter]

SATURDAY, SEPTEMBER 18, 1909

THE ANNUAL FOURTH OF JULY RECORD

In this issue of THE JOURNAL appears the seventh annual compilation of deaths and injuries resulting from the celebration of the Fourth of July. The fact that the celebration was spread over three days this year, since the Fourth came on Sunday, may be partly responsible for the increased number of tetanus cases, the total being nearly double that of last year. Except in a few progressive cities which passed prohibitory or restrictive ordinances, however, there seems to have been a relaxation of authority regarding the use of fireworks, chiefly in Illinois, Massachusetts, New Jersey, New York and Pennsylvania. More serious has been the absence or non-enforcement of restrictions on the use of blank cartridges, which, of course, accounts for the increase of tetanus cases.

Tetanus antitoxin, although extensively used, was still not employed as much as it should have been, either as a preventive measure or after active symptoms began. In several instances, according to report, doctors still resorted to the old methods of treatment long known to be of little value. Several instances were reported also in which doctors did not lay open the wounds until after tetanus had developed, and, therefore, too late to be effective. In some instances the later operation revealed imbedded in the wound the wad which should have been removed at the first treatment. The following simple rules have already had wide circulation, but should be carefully followed in the treatment of every blank cartridge or puncture wound:

TO PREVENT LOCKJAW

1. Freely incise every wound.
2. Carefully and thoroughly remove from the wound every particle of foreign matter.
3. Cauterize the wound thoroughly with a 25 per cent. solution of phenol (carbolic acid).
4. Apply a loose wet boric acid pack.
5. Inject subcutaneously 1500 units of antitetanic serum.
6. In no case should the wound be closed. It should be allowed to heal by granulation. The dressing and packing should be removed every day.

Although the numbers of dead and of injured are larger than or as large as last year, there is, nevertheless, abundant evidence of an increasing public sentiment in favor of more rational methods of celebration. Two more cities, Washington and Cleveland, passed and enforced prohibitory ordinances, and Chicago enforced a restrictive ordinance, with the result that no casualties were reported for Washington, only four slight injuries for Cleveland, and less than half the usual number of accidents and no deaths for Chicago. These results show that prohibitive measures are more effective than mere restrictive ordinances, although restrictive measures are much better than doing nothing.

Efforts to provide safe amusements have been more extensive this year than ever before. Worthy of special mention is the plan adopted by Springfield, Mass., which shows the great opportunity offered by the annual celebration of the Fourth of July to instill in the minds of the youth of our land a spirit of genuine patriotism. The parades, the floats representing historical incidents, the picnics, and, last but not least, the annual chorus drill under skilled leaders in preparation for the mass singing of national airs and popular songs—all these methods, if more extensively employed, would add greatly to the value of the Fourth-of-July celebration in our national life, and help to do away with the present death-dealing methods of celebration. Those who are working toward better methods have reason for encouragement and should persevere. City authorities should assist by prohibiting fireworks. The only objections seem to come from the "business interests" involved. By the combination, therefore, of substitution and restriction, a more enlightened celebration of our national Independence Day will be assured.

STILL TEMPORIZING WITH THE BLANK CARTRIDGE PISTOL

Blank cartridge wounds cause more deaths in the annual celebration of the Fourth of July than all other factors combined. In seven years, 794 deaths have been caused by this one factor! Most of the victims were bright active boys, aged from 6 to 18 years, and they were doomed to die the most awful death known to medical science, a death the agony of which is probably not paralleled even by the tortures of the Inquisition. If this annual sacrifice were really necessary, it would be far more merciful to pick out the hundred or more youths each year and deliberately shoot them. But this annual outrage is not necessary; it is entirely preventable, and the prevention rests with our city governments.

For seven years THE JOURNAL has heralded these facts to the world. They have been given even wider publicity by some of our public-spirited newspapers. During the past two or three years the public press generally has taken up the cry, and now no one can plead ignorance of the awful facts. Nevertheless, the average city government still views with the blind eye of callous indifference the fatalities for which it is morally responsible. Some cities have, indeed, passed prohibitory ordinances, but have not enforced them vigorously. To permit the use of blank cartridges and blank cartridge pistols in the celebration of the Fourth of July is abso

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lutely criminal. The city council which fails to pass and to enforce ordinances prohibiting the use of these instruments of torture will hereafter be open to the charge of criminal negligence. The plea of ignorance is no longer good; to temporize further regarding the sale and use of blank cartridges and blank cartridge pistols is to aid and abet torture and murder.

These are strong words; but to use mild ones would be to trifle with the anguish and horror in scores of homes—a horror and anguish but faintly reflected in the appalling statistics on the subject. The only effective way to deal with the murderous blank cartridge pistol is to pass and to enforce an absolutely prohibitive ordinance in each city. No more temporizing should be tolerated. The agonizing deaths from this cause should cease.

THE VALUE OF TETANUS ANTITOXIN

Among the reports of the cases of tetanus that we have received we have frequently found the statement that tetanus antitoxin was not used because "the doctor said" that it "was useless," or "of doubtful value," or "in an experimental stage." Therefore, although we have been to some pains at several times to set forth the exact status of tetanus antitoxin according to the best available evidence, it would seem worth while again to discuss the subject while it is so acutely before us as it now is. To put the matter in a nutshell, it may be stated dogmatically that the value of tetanus antitoxin as a prophylactic agent is very great, and its efficiency nearly absolute; as a curative agent it is by no means worthless, and undoubtedly it saves not a few lives when properly used. Apparently, to judge from the reports at hand, many physicians have not yet learned to distinguish between the results obtained by the prophylactic use and by the curative use of tetanus antitoxin; the usual futility of the latter has been incorrectly assumed to apply to the former.

The example of using tetanus antitoxin for preventive purposes was first furnished by the veterinarians, who have to contend with tetanus much more commonly than we. Knowing that in certain stables the horses which received wounds were very likely to develop tetanus, they found it desirable to try to prevent this serious complication by injecting antitoxin into all horses that had received wounds. The results that they obtained were from the first so striking that now antitoxin prophylaxis is invariably used to prevent endemic and epidemic outbreaks of tetanus in horses. For example, in one stable in which from six to eight cases of tetanus developed yearly, it was decided to give every horse with wounds about the feet a prophylactic dose of antitoxin; during the following five years three hundred horses were so treated without a single case of tetanus, although one horse which received no antitoxin developed the disease.[1] Vaillard[2] says that in a series of 13,124 prophylactic injections in horses not one contracted tetanus. In man it is not so easy to estimate the results of tetanus prophylaxis, for, outside of Fourth-of-July tetanus, we do not often get a chance to observe this disease in epidemic proportions, but such evidence as we have is almost equally favorable. Suter[3] has collected 700 cases in which but one light attack of tetanus was observed among all the patients given antitoxin. In France, where this practice seems to have been especially general, there have been a few cases of tetanus in spite of prophylactic injection, but the entire evidence is emphatically in favor of the value of this procedure; indeed, Vaillard claims that in only five cases in the literature to 1908 can the antitoxin prophylaxis be considered a complete failure. The Society of Surgery of Paris recently reported that in a group of Paris hospitals there had occurred in the last seven years but eleven cases of tetanus, all of which were in persons who by some mischance had not received the customary preventive dose of antitetanus serum, which is the routine practice there after a street accident. Kocher went so far as to say before the German Surgical Society that he would consider any physician entitled to reproof who failed to use this measure in a case of injury with contamination of the wound by street dirt.

In this country, the prophylactic treatment of Fourth-of-July injuries has been, so far as we can learn, invariably successful, and our annual mortality list from "patriotic" tetanus has occurred because of the lack of this measure in the cases of the victims. It is to be expected that a few cases may occur in spite of antitoxin, especially when it is given several days after the injury is received, because by this time the disease may be well advanced and the blood loaded with tetanus toxins, even several days before the appearance of symptoms.[4] But even in these cases the prognosis will be much better if the antitoxin is given before rather than after the symptoms have developed.

To neglect to use antitoxin as a curative agent is also unwarranted in the light of our present knowledge, even although the results are by no means so striking as with diphtheria antitoxin. There is no question that more of these patients recover with antitoxin than without, even if the number is not great. Especially efficacious seems to be the intraspinal route of administration, for by this means the antitoxin is brought into close contact with the place where it is most needed, and it is well known that antibodies injected subcutaneously or into the blood directly do not find their way into the cerebrospinal fluid in large amounts. Clinical results support this theorization, and Hoffmann[5] reports a series of thirteen cases with 58 per cent. mortality in which the antitoxin was given subcutaneously, whereas of sixteen patients given intradural injections only two died, and these from complications. Undoubtedly some of the

1. Wells, H. G.: Medical News, June 1, 1901.
2. Bull. Acad. Méd., Paris, 1908, lxxii, 581.
3. Arch. klin. Chir., 1904, lxxv, 113; Beitr. klin. Chir., 1907, lii, 671.
4. Madsen: Centralbl. f. Bakteriol., 1908, xi, No. 3.
5. Beitr. klin. Chir., 1907, lv.

earlier disappointments with antitoxin prophylaxis and treatment were the result of the uncertain activity of the antitoxin preparations then on the market, a defect which has been remedied in this country by the system of standardization developed by the Hygienic Laboratory of the Public Health and Marine-Hospital Service.

TUBERCLE BACILLI IN THE BLOOD

Not long ago Rosenberger of Philadelphia came forward with the startling claim that tubercle bacilli are present in the circulating blood even in cases of chronic and localized tuberculosis. The claim was based on the actual demonstration of acid-proof bacilli, which Rosenberger interpreted to be tubercle bacilli, in smears made of centrifugally sedimented blood corpuscles in suspensions of blood in citrate solution. The blood was drawn from a vein at the elbow. Thick smears were used, and after drying the red corpuscles were laked with water.

In view of the practically uniform failure of previous efforts, whether by staining methods or by inoculation in guinea-pigs, to demonstrate tubercle bacilli in the blood in cases of acute and severe febrile tuberculosis, Rosenberger's results were not accepted without reservation. What would the results of other observers, using the same methods as Rosenberger, show? The matter is not settled, but the results already at hand indicate that there are great difficulties in the way of a general acceptance of Rosenberger's "discovery," "the most important and far-reaching discovery as to tuberculosis since Koch's own discovery of the bacillus 27 years ago," according to an enthusiastic writer. In the first place competent observers, notably Ravenel and Smith, record entirely negative results of their study of the blood in cases of tuberculosis according to Rosenberger's method. Burnham and Lyons also failed.[1] Here may be mentioned, too, that Schroeder and Cotton[2] failed to find any bacilli in the blood in 42 tuberculous cattle, and the negative outcome of their microscopic work is strengthened by the failure of tuberculosis to develop in any of the guinea-pigs inoculated with the blood they examined.

In the second place, Brem, by a pain-taking investigation reported with much detail,[3] shows that the occurrence of acid- and alcohol-resistant rods in water may lead to the gravest error in such examinations as the one now under discussion unless particular care is taken to exclude contamination of the specimens from the water and the solutions used. Inasmuch as adequate regard probably has not been paid to this point in the past, Brem's advice to exercise great care in all examinations for tubercle bacilli is eminently timely. The failure of observers to corroborate Rosenberger's findings, on the one hand, and, on the other, the possibility that bacilli regarded as tubercle bacilli may have been introduced accidentally, warrant the conclusion that as yet we have no decisive proof of the frequent and continued presence of tubercle bacilli in the blood in ordinary cases of tuberculosis.

1. THE JOURNAL, Aug. 28, 1909, p. 731.
2. Arch. Int. Med., 1909, iv, 133.
3. This issue of THE JOURNAL.

INJUSTICE TO THE TUBERCULOUS BY SENDING THEM WEST

We have many times commented on the heartlessness shown in sending to the West and Southwest patients who are in the terminal stage of tuberculosis or even curable patients who are without adequate means. The National Association for the Study and Prevention of Tuberculosis has looked into this practice and has reached the conclusion that over 7,000 persons hopelessly ill with consumption go or are sent annually to the states of California, Arizona, New Mexico, Texas and Colorado. The association asserts, further, that "at least 50 per cent. of those who go to the Southwest every year for their health are so far advanced in their disease that they can not hope for a cure in any climate, under any circumstances." The financial condition of these incurables is such that 60 per cent. of them "have not sufficient means to provide for the proper necessaries of life." This means that over four thousand consumptives either have death hastened by lack of good food and medical attention or else that they are forced to accept charitable relief. Various municipalities and organizations in the West and Southwest have protested; and we think that their protests have been exceedingly moderate under the circumstances. It behooves physicians, nurses, officials, and the public in general to understand the situation and to use every influence to prevent this gross abuse.

Medical News

ILLINOIS

Personal.—Dr. Spencer S. Fuller, Paxton, has returned from Europe.——Dr. James L. Greene, formerly superintendent of the Kankakee State Hospital for the Insane, has taken the oath of office as alienist of the State Board of Control of State Institutions, and will reside in Springfield.——Dr. Elva A. Wright, Lake Forest, is at present in Edinburgh and will return to the United States late in October.

Medical Colleges Not Recognized.—At the semi-annual meeting, June 29, the State Board of Health declared the St. Louis College of Physicians and Surgeons a medical institution not in "good standing," to date from July 1, 1909, conditioned Barnes University, St. Louis, and declined to restore recognition to the National Medical University of Chicago, which had been declared not in "good standing" a few months before.

INDIANA

Personal.—Dr. Omer H. Stewart has been appointed pension examining surgeon at Huntington, vice Dr. L. B. Johnson, resigned.——Dr. W. Marshall Varble has been given a license for the establishment of a maternity branch of the Jeffersonville Hospital.

Licenses Cancelled.—The licenses of Drs. Willis Farrel, Lee M. Farney, Burnhard J. Kowenstrot, Fort Wayne, are said to have been revoked, August 11, by the State Board of Medical Examination and Registration, on the ground that the holders advertised to defraud the public.

Sanitary Convention.—On September 7 and 8, the State Board of Health held at the State House, Indianapolis, its second annual convention of market milk men, butter makers, wholesale dealers in milk, milk inspectors, health officers, and all others interested in the production and distribution of sanitary milk. Among the chief questions considered were the production of clean and wholesome milk; manufacture of butter to meet state and federal requirements; state laws affecting dairy interests, and city ordinances regulating the sale of milk;

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bovine tuberculosis; the tuberculin test; proper construction of dairy barns; methods of refrigeration, relative cost of production of clean and unclean milk, and the necessity for cooperation between health officers, milk inspectors, etc.

KENTUCKY

Antituberculosis Conference.—The State Antituberculosis Conference will be held in Lexington, September 29 and 30. At this conference it is expected that a state organization will be formed, and that arrangements will be made for concerted action in combating the disease throughout the state.

School Inspection.—Medical inspection of the children of all public schools of Louisville has been inaugurated. Drs. Florence Brandeis, Henry H. Duke and Siegel C. Frankel are the inspectors appointed by the city health officer. Examinations are made of school buildings and premises, heating and ventilation, drinking-water, toilet rooms, cellars and playgrounds. In case of contagious diseases, the patients will be sent home immediately, the schools dismissed and the rooms fumigated. After scarlet fever, not less than 28 days may elapse before the pupil may return to school; after diphtheria, ten days must elapse after the membrane has disappeared, and those exposed to diphtheria are excluded for one week after the time of the last exposure. Patients with whooping cough are not allowed to return to school until after the spasmodic stage has passed. A limit of ten days is placed in chickenpox and two weeks in cases of roetheln. Clinical evidence alone is sufficient to exclude for tonsillitis, and children with pediculosis, ringworm, scabies and impetigo contagiosa are excluded from school until cured.

LOUISIANA

Tulane Alumni at Mississippi Valley Meeting.—Tulane University has arranged for a meeting of its alumni at the time of the meeting of the Mississippi Valley Medical Association, in St. Louis, October 12-14. A committee of resident alumni, composed of Drs. Henry J. Scherck, Harry McC. Johnson, Robert C. Atkinson and R. C. Finley have arranged to conduct a central registration bureau where alumni may register, giving home address and stopping place in St. Louis. A banquet is also to be arranged. The committee offers to furnish information regarding hotels, clinics and other matters.

Personal.—Dr. Stephen W. Stafford, New Orleans, has returned from abroad.——Dr. Henry L. Lazar, Kentwood, was obliged in self-defense to kill a negro who resisted arrest, August 22.—Dr. Cyriac J. Gremillion has been elected president of the board of health of Alexandria.——Dr. A. A. Forsythe, mayor of Monroe, was shot in the leg by an insane negro, August 24.——Dr. Louis M. Thomason has been made president of the board of health of Mandeville.——Dr. Thomas A. Roy, Mansura, has been appointed a member of the State Board of Health, vice Dr. Sidney D. Porter, Moreauville, elected chief medical inspector to succeed Dr. C. Milo Brady, New Orleans.

MARYLAND

Medical Men Candidates.—The following members of the medical profession of the state are announced as candidates for office: For the senate, Dr. Leonard E. Beach, Baltimore, and Dr. W. C. R. Miller, Mason and Dixon, and for the house of delegates, Dr. Thomas A. Ashby, Baltimore.

Address on Tuberculosis.—Brigadier-General George M. Sternberg, U. S. Army retired, delivered an address on "Tuberculosis" before the annual institute of public school teachers of Montgomery county, at Rockville, September 8, in the interest of the Social Service League. In the address, he strongly endorsed the proposal to establish on the almshouse farm, near Rockville, a tent sanatorium for indigent tuberculosis patients.

Baltimore

Personal.—Drs. Thomas S. Cullen and Harry Friedenwald have returned from Europe.——Dr. Benjamin Frayser has been appointed resident physician of the Pottsville (Pa.) Hospital.

Not Pellagra, Rheumatism.—Announcement has been made that the supposed case of pellagra at Johns Hopkins Hospital was not pellagra, but rheumatism. It was considered suspicious, as the patient had just returned from Costa Rica.

Steamer Has Clean Bill of Health.—The steamer *Andyk* from Rotterdam, over whose expected arrival there was so much apprehension as regards cholera, arrived in Baltimore, September 8, after detention of one day in quarantine. She presented a clean bill of health.

Failed to Report.—The assistant health commissioner has ascertained that hospitals have been failing to report many cases of typhoid fever, and on calling attention to this matter 135 cases were reported last week. These, however included many cases treated, but not previously reported for the preceding four months. He also finds that less than one-half of the births of the city are reported. The law requires such reports on penalty of a fine of $10 for each violation.

MISSOURI

Outdoor Lectures on Tuberculosis.—During August, there were delivered under the auspices of the Municipal Commission on Tuberculosis, St. Louis, twelve outdoor lectures in various parts of the city.

Personal.—Dr. George C. Willson, superintendent of State Hospital No. 3, Nevada, has resigned.——Dr. Robert L. Mount, Polo, has been appointed examining physician for Caldwell county for the State Tuberculosis Sanatorium.——Dr. Frank B. Hiller, secretary of the State Board of Health, has opened official headquarters at Jefferson City.——Dr. H. Hays Bullard, of the University of Missouri, has been made instructor in anatomy in Tulane University, New Orleans.

NEW YORK

State Hospitals.—The State Lunacy Commission, which directs the administration of thirteen state hospitals for the insane, with about 35,500 patients and employés, is receiving requisitions for supplies for the next three months. The purchases will aggregate 12,000,000 pounds of foodstuffs, with an approximate cost of $450,000.

Vital Statistics.—There were 11,199 deaths reported in July, or 675 fewer than for July, 1908, equivalent to a death rate of 15.4 per 1,000. During the same period 17,530 births were reported. The mortality from diarrhea and enteritis was 1,470, or 707 fewer than for July, 1908; the deaths from typhoid fever were 112, or 27 fewer than for July, 1908, but the mortality from measles was 126, as compared with 67 in the corresponding month of last year. Chief among death causes were tuberculosis, 1,126; violence, 913, of which 145 were suicides; nephritis, 682; cancer, 598; and pneumonia, 340.

New York City

Off for Europe.—Dr. and Mrs. Alfred W. Pollok and Dr. Henry A. Cassebeer sailed for Europe September 11.

Osteopaths Cannot Issue Death Certificates.—Justice Crane of the Supreme Court holds that osteopaths cannot issue death certificates, and has denied an injunction to compel the city authorities to grant such a privilege.

Campaign Against Tuberculosis.—Exhibits and phonograph lectures on tuberculosis are being continued in different parts of this city. The attendance has been large. At Seventh avenue and Forty-third street the daily attendance is about 4,000, a splendid showing for this neighborhood. For the week ending September 4, there were 536 cases of tuberculosis, with 142 deaths.

Typhoid Increasing.—For the week ended September 4, there were 181 cases of typhoid fever reported, with 11 deaths, a rather larger number than usual so early in the fall. Most of these cases have occurred in the congested tenement districts. Whatever contamination there is in our water comes from the watersheds. For the week ended August 28, there were 158 cases, with 14 deaths; for the week ended August 21, there were but 74 cases, with 15 deaths.

Buffalo

New Hospital Needed.—Plans for the repair of buildings of Erie County Hospital have been submitted to the supervisors, and the cost of the proposed repairs is $179,650. It is believed that the supervisors will see the uselessness of attempting to repair the old buildings at such a cost, and will provide new buildings to accommodate 500 patients.

Temporary Isolation Hospital.—On September 2 there were still 24 cases of scarlet fever in the temporary isolation hospital. Since the opening of the hospital in February, 300 patients have been treated. In connection with the board of health, a committee from the Buffalo Academy of Medicine and the Erie County Medical Society urged the authorities to hasten the selection of a site on which to erect the Municipal Hospital for Acute Contagious Diseases. The present structure is an old schoolhouse which was condemned for school purposes because of insanitary conditions.

OHIO

Physicians and Veterinarians Meet.—The Ohio Society of Comparative Medicine held its annual meeting in Upper Sandusky, August 24 and 25, and elected the following officers: President, Dr. G. W. Cliffe, Upper Sandusky; vice-president, Dr. W. A. Axby, Cincinnati; and secretary, Dr. F. F. Sheets, Van Wert.

Personal.—Dr. Harry R. Beery, superintendent of the Custodial Farm Institution for Feeble-Minded, Morgan Station, has resigned to enter the Medical Corps of the Army.——Dr. Charles F. Clark, Columbus, has sailed from England for India. ——Dr. William W. Glenn, Hillsboro, spent the summer abroad. ——Dr. Edson B. Morrison, formerly assistant superintendent of the State Epileptic Hospital, Gallipolis, has gone to the Isle of Pines, and expects to locate there.——Dr. Susan Platter, Chillicothe, has been appointed physician to the State Girls' Industrial Home, near Delaware.

Cincinnati

Faculty Increased.—The board of trustees of the University of Cincinnati have made the following appointments for the new Ohio-Miami Medical College: Dr. Paul G. Woolley, professor of pathology; Dr. William B. Wherry, assistant professor of pathology and bacteriology, and Drs. Oscar Berghousen and C. E. Iliff, clinical instructors in medicine.

Personal.—Dr. Robert D. Maddox, responding to a call for aid, September 4, shot and killed a negro burglar.——Dr. Adam E. Schlanser has succeeded Dr. Adolphus W. Foertmeyer as receiving physician at the city hospital. A handsome gold watch and fob was presented to Dr. Foertmeyer by the employés and officers of the hospital, August 30.——Dr. John M. Withrow, president of the Board of Education, has returned from abroad. ——Dr. Robert B. Mussey has succeeded Dr. Schlanser as resident physician in the city hospital.

PENNSYLVANIA

McCormack at Greensburg.—Dr. J. N. McCormack of Bowling Green, Ky., is to give a lecture in Greensburg, September 25.

Dispensary Evil.—At the recent meeting of the Northwestern Medical Society, resolutions were passed advocating a dispensary law making it a misdemeanor for a person able to pay for medical treatment to present himself for free care at any hospital or dispensary.

District Society Meeting.—The sixth annual meeting of the Seventeenth District Medical Society was held in Sunbury, September 3. Dr. William T. Graham, Sunbury, was elected president, and Dr. Luther B. Kline, Catawissa, secretary. It was decided to hold the next meeting at Bloomsburg.

State Society Meeting.—The Medical Society of the State of Pennsylvania will hold its fifty-ninth annual session in Philadelphia, September 27-30, and elaborate provisions are being made for the event by the Philadelphia County Medical Society, which will be the host of the occasion. One of the important matters to be discussed at this meeting is that of the state appropriations to hospitals. The system in Pennsylvania has been severely criticized, claims being made that appropriations are made to hospitals either for maintenance or equipment without any provision for the proper and economical use of the money, and that many hospitals not in need of state aid obtain large appropriations even when their wards are used for pay patients. It is claimed that several appropriations made by the last legislature were unconstitutional, and it is stated that the methods employed by certain institutions to obtain state aid will be inspected. A public conference on tuberculosis is to be held at a joint meeting with the Pennsylvania Society for the Prevention of Tuberculosis, September 29.

Philadelphia

Personal.—Dr. Frederick Warren Smith, medical inspector of the bureau of health, left last week for Vienna.——Dr. Elizabeth C. Spencer has been elected resident physician of the female department of the State Hospital for the Insane, Norristown, vice Dr. Mary Wolf, resigned.

Degeneracy Due to Tenement Evils.—A definite movement to provide sanitary conditions for inhabitants in the tenement districts in Philadelphia was made recently by the director of health and charities. An arraignment of the city's neglect of its poor was made by the secretary of the Children's Aid Society, who stated that these overcrowded, badly ventilated and undrained districts are breeding degeneracy and producing a race of subnormal, defective children. The central idea of the conference was to focus attention on the crying need of improvement to determine the chief sources of squalor and disease and to direct attention to the need of legislation to correct these conditions, which increase the death rate by producing tuberculosis, pneumonia and bronchitis. A comparison was made between old, densely populated sections in which the element of bad drainage and poor ventilation largely enters, and the newer sections where model houses have been erected with proper light, ventilation and drainage. It was found that in the former the total death rate during 1908 per 1,000 was 21.53, of which 8.50 were caused by diseases attributed to bad housing conditions, while in the latter the death rate per 1,000 was 8.24, of which 2.50 were from these same causes. In the former, infant mortality was 400 per cent. greater. In outlining a plan of action to overcome these evils, it was suggested that a commission be established, the work of which includes the appointment of committees to examine existing laws and conditions and seek the cooperation of all social organizations in bringing about the enactment of the following laws: An act requiring all premises to be underdrained and making all privy vaults a nuisance; an act extending the provisions of tenement-house laws to lodging houses and rear dwellings; an act requiring the removal of insanitary dwellings and the abandonment for dwelling purposes of insufficiently lighted and ventilated buildings; an ordinance requiring all garbage to be placed in metal-covered receptacles.

WASHINGTON

Malpractice Suit Settled.—In the malpractice suit against Dr. Charles P. Thomas, Spokane, brought by Mr. and Mrs. Leslie Lamb, in which $889 damages were awarded by the jury, an adjustment has been made and the case dismissed.

Appeal to the Courts.—Nearly one hundred appeals have been filed in the superior court from the action of the State Board of Medical Examiners in refusing licenses to osteopaths, magnetic healers, chiropractics, neuropractics, mental healers, naturopaths and other peculiar varieties of applicants for license to practice medicine.

Medical School Inspection.—Regular medical inspection of the public schools of Spokane was commenced September 4, by the board of education. The work is carried on by the following five inspectors: Dr. Carroll L. Smith, chief inspector, and Drs. George G. Belden, Carl H. Weisman, W. S. Frost and C. S. Eikenbary, assistants.

WYOMING

Society Organized.—The Big Horn County Medical Society has been organized at Basin, with the following officers: President, Dr. Herman C. Homer, Grayball; vice-president, Dr. George W. Walker, Hyattsville, and secretary, Dr. George A. Harris, Basin.

Hospital Notes.—The State Board of Charities and Reforms has given its consent to have the state hospital at Casper placed under the management of the Franciscan sisters.——The Cheyenne Private Hospital has been incorporated under the direction of Dr. George P. Johnston, Dr. William A. Burgess and Robert B. Hopkins.——After the investigation of the report that the state hospital at Rock Springs was settling to a dangerous degree by reason of the removal of coal underlying the building, State Coal-Mine Inspector Bird reports that the building is in no danger and has a strong foundation.

State Society Meeting.—The eleventh annual meeting of the Wyoming State Medical Society was held in Cheyenne, September 2, under the presidency of Dr. George L. Strader, Cheyenne. The following officers were elected: President, Dr. Neil D. Nelson, Shoshoni; vice-presidents, Drs. C. E. McCollum, Laramie, and S. W. Johnson, New Castle; secretary, Dr. John D. Fossler, Sheridan; treasurer, Dr. William A. Wyman, Cheyenne; delegate to the American Medical Association, Dr. James J. Monahan, Encampment, and alternate, Dr. Marcus A. Newell, Sheridan. Casper was selected as meeting place for 1910.

GENERAL NEWS AND COMMENT

Obstetricians and Gynecologists Meet.—The annual meeting of the American Association of Obstetricians and Gynecologists will be held at Fort Wayne, Ind., September 21-23. By an error the wrong date of the meeting has been appearing in THE JOURNAL in the list of national societies, which appears monthly. Evidently no officer or member of the association noticed the error, as we were not notified of the mistake till a few days ago. As we are dependent on officers of societies for information concerning names of officers and dates of meetings, we respectfully request that they look over the list of national and state societies in the advertising pages of THE JOURNAL and notify us promptly of any errors.

Cumberland Valley Physicians Meet.—The seventh annual meeting of the Cumberland Valley Medical Association was held in Chambersburg, Pa., September 2, the president, Dr. Theodore H. Weagley, Marion, Pa., in the chair. The following officers were elected: President, Dr. De Witt C. R. Miller, Mason and Dixon, Pa.; vice-presidents, Drs. Peregrine Wroth, Jr., Hagerstown, Md., Philip R. Koons, Mechanicsburg, Pa., and P. Brough, Montgomery, Chambersburg, Pa.; secretary, Dr. John J. Coffman, Scotland, Pa. (re-elected); assistant secre-

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taries, Drs. John R. Laughlin, Hagerstown, Md., E. Roberts Plank, Carlisle, Pa., and Henry C. DeVillbiss, Chambersburg, Pa., and treasurer, Dr. John J. Koser, Shippensburg, Pa. The next annual meeting will be held in Washington county, Md., probably at Pen Mar.

Fresh-Air Schools.—Open-air schools are growing in favor. In a pamphlet issued by the Boston Association for the Relief and Control of Tuberculosis, the Providence Fresh-Air School and Boston's outdor school are described and the work they are accomplishing is detailed. In the former school it is stated that throughout the first winter, which was a severe one, no pupil in the fresh-air school had even a cold in the head, while during the stormy weather the attendance at this school was better than at the regular schools. Boston's "out-door school," which, it is claimed, is the first school of its kind in this country, has accomplished much good. Each child in the school is furnished with a reclining chair and blankets, a long warm overcoat, overshoes, bag made of paraffined canvas to keep out rain and wind, and with a detachable blanket lining, to sit in, woollen cap or hood, mittens, drinking cup and toothbrush. The number of children in the school at one time is limited to twenty. A principal of one of the Boston schools conceived and executed the idea of relieving certain overcrowded grades in his school by taking about twenty of the most anemic pupils and seating them at portable desks in a cozy corner of the school yard, during pleasant weather. The regular teachers of these children remarked on the sudden appearance of unsuspected mental alertness shown since the fresh-air regime was started.

FOREIGN

Austregesilo Made Professor of Clinical Medicine at Rio.—The university at Rio de Janeiro has called to the chair of clinical medicine the local clinician and alienist, A. Austregesilo, a translation of whose work on "Mental Disorders in Ankylostomiasis" was published in the February *Alienist and Neurologist*. After the ceremony of installation the young professor found an automobile awaiting him outside, a present from his clients and other friends.

British Association for the Advancement of Science.—The seventy-ninth annual meeting of the British Association for the Advancement of Science met at Winnipeg, August 25-September 1, under the presidency of Sir J. J. Thompson, professor of experimental physics in the University of Cambridge. This makes the fourth time that this association has held its annual meeting outside of the British Isles; it met in Montreal in 1884, in Toronto in 1897, and in South Africa in 1905. At the opening meeting, Major McMahon read a letter from the retiring president, Francis Darwin, who was unable to be present. The association was welcomed to Winnipeg by the mayor of the city. The president-elect, Sir Joseph J. Thompson, delivered his inaugural address, which dealt with educational matters. The section meetings began on August 26. Saturday, August 28, was devoted to excursions and sightseeing. A special feature of the meeting was the establishment of a subsection devoted to agriculture. The total number attending was about 1,400, only about half the maximum number; yet this is a larger number than attended the Toronto meeting. The next annual meeting will be in Sheffield, England, Aug. 31 to Sept. 7, 1910, under the presidency of Rev. T. G. Bonney, D.Sc., LL.D., F.R.S., emeritus professor of geology, University College, London. According to custom, the officers of the sections will be appointed by the council about Christmas. Prof. John Perry, F.R.S., the general treasurer, and Major P. A. MacMahon, F.R.S., and Prof. W. A. Herdman, F.R.S., the general secretaries, were re-elected.

Death of Dr. Haffter of Switzerland.—The medical profession in Switzerland has sustained a severe loss in the death of Dr. Elias Haffter, editor-in-chief of the *Correspondenz-Blatt für Schweizer Aerzte*, president of the commission that accomplished the reorganization of the profession in Switzerland, and leader in the campaign against tuberculosis and in other branches of social medicine. He held a prominent position in the army, but resigned when his town, Frauenfeld, built a hospital and placed it in his charge. Besides a number of scientific literary contributions, his record of a trip around the world ran into several editions, and he organized and was president of an oratorio society. In commenting on Haffter's well-rounded life, the present editor of the *Correspondenz-Blatt* remarks: "No one can realize what it means to be the editor of a medical journal unless he has been one. All kinds of pleas and demands come to him; he has to restrain the impatience of contributors who want to see their works hurried into print and tranquilize others whose works have to be rejected for lack of space or other reason; he has to read all the manuscripts sent in and go over them with the blue pencil, verify corrections, etc., and, last but not least, he has to be a sort of universal information bureau, responding to inquiries in regard to assistants, etc., the best place to buy instruments, the solution of perplexing questions of professional ethics, etc." Haffter undertook this task for the *Correspondenz-Blatt* when Garré laid it down to remove to Germany, and carried it on for twenty years, notwithstanding that his health was undermined by three severe attacks of pyemia, professionally acquired, the last proving fatal at the age of 58. He is cited as the embodiment of the ideal conception of the medical profession and of the happiness it brings when thus conceived. "Nothing more beautiful, nothing nobler," he used to say, "than our profession! The true physician is the exponent in the highest degree of the Golden Rule, but Sympathy alone is blind; Conscience and Science supply the eyes."

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 4, 1909.

Entomologic Research in Africa

In view of the intimate relations between certain insects and the propagation of diseases in man and animals in tropical Africa and of the similar relations between insects and plants having an economic value which is becoming more evident as settlement in that continent progresses, the secretary for the colonies, Lord Crewe, has appointed a scientific committee to study economic entomology with special reference to Africa. This body will be known as the African Entomological Research Committee and includes most of those who are eminent in tropical medical and allied science—Mr. E. Austen of the Natural History Museum, DR. A. G. Bagshawe, director of the Sleeping Sickness Bureau, Col. Sir David Bruce, Dr. S. F. Harmer, keeper of zoology of the British Museum, Dr. R. S. Macdougall, entomologic adviser of the board of agriculture, Sir John Macfadyean of the Royal Veterinary College, Sir Patrick Manson, Professor Nuttall, and Dr. A. E. Shipley. Arrangements are being made to despatch a trained entomologist to the east side of tropical Africa and another to the west, in order to stimulate official and other residents to collect and observe noxious insects and to instruct them in scientific methods. By this means it is hoped to obtain throughout these territories an organized body of investigators who will send their collections and observations to the committee. These collections will be classified by a number of British and, in some instances, continental entomologists, and named specimens will be distributed to such institutions as may require them for purposes of instruction, both at home and in Africa. The committee also will keep in touch with the work which is being done in this branch in Egypt, the Sudan and South Africa, and the results will be published from time to time in a journal or bulletin.

Vaccine Therapy and Immunization

Vaccine therapy has now assumed great importance in the eyes not only of the profession but of the public. Two hospitals, St. Mary's and the Mount Vernon Hospital for Consumption, have issued appeals for special funds for its study and practice. These funds will be devoted to the maintenance of laboratories and laboratory workers and also to the support of wards in which the treatment will be conducted under the most favorable conditions. At St. Mary's Hospital the new department for therapeutic inoculation has been established in a special wing under the direction of Sir Almroth Wright, the pioneer of the modern development of the method. Here it has been most extensively used in the treatment of localized tuberculosis and the results have been excellent.

At the Mount Vernon Hospital the department is under the direction of Dr. R. W. Allen whose attention has been principally directed to affording protection against catarrh and influenza. He is applying the method to the forms of tuberculosis of the lung which are confined to a limited area. At St. Mary's Hospital the new department is controlled and financed by a special committee which is independent of that of the hospital and which contains many philanthropists who have guaranteed large subscriptions for a period of seven years. Thus Sir Ernest Cassel gives $5,000 a year, Mr. William Bonn $2,500, and Lord Justice Moulton $1,250.

Physical Exercises in Elementary Schools

Only recently have the education authorities recognized that physical health lies at the basis of education and that the object should be to develop a sound mind in a sound body. Formerly simply mental instruction was provided and no attention was paid to the health and very little to the physical development of the child. An important memorandum has

just been issued by the board of education which shows that the authorities are now fully alive to the whole problem. It is pointed out that even proper nourishment, effective medical inspection, and hygienic surroundings will not of themselves produce a sound physique. A further requirement is exercise. This may, no doubt, be promoted, especially in country children, by a variety of means; but none of these is such that special systematic physical exercises should be entirely dispensed with. For town children such exercises are regarded as indispensable for the development of the body and for the correction of defects or evil habits induced by unhealthful physical environment. There should be a direct relation between the three factors of nutrition, general health and physical training. In their endeavors to establish such a relation the board have been deeply impressed with the inadequacy of the existing means. They issued for the first time in 1904 an official syllabus of exercises based on the Swedish system; this has now, as the result of the experience gained, been extensively revised. The exercises are arranged with a view to the harmonious development of all parts of the body and may be carried out without any special apparatus. Exercises likely to prove injurious to children of weak physique have been excluded.

Paupers Object to a Hindu Doctor

In the Butterworth Union of Leicestershire fifteen paupers signed a petition to the local government board (which controls the poor-law administration) protesting against the action of the local guardians in appointing Dr. J. C. Bhukerchargi, a native of India, as medical officer. The guardians replied by a unanimous vote of confidence in their officer.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, August 26, 1909.

Institute of Colonial Medicine

In 1902 an Institute of Colonial Medicine, affiliated with the Paris medical school, was founded to give instruction in tropical medicine to physicians. The course of instruction lasts about two and one-half months, the session beginning about October 15 and terminating toward the end of December. At the end of the session the pupils who pass the final examination successfully receive from the University of Paris the diploma of colonial physician. Since its foundation the Institute of Colonial Medicine has given about 200 of these diplomas. Properly qualified French and foreign physicians are admitted.

First Aid to the Injured in the Streets

For a long time there has been complaint about the deplorable custom of prescribing by pharmacists. Oddly enough, the police are the instigators of this illegal practice. When an accident occurs in the streets the police take the injured person to the nearest drug-store, and the druggist renders first aid. The local medical society (*Syndicat médical de Paris*) at its last session passed the following resolution: (1) Injured persons should not hereafter be taken to the nearest drug-store by administrative orders; (2) first-aid stations should be erected in the streets; (3) physicians who consent to take part in the medical service of these stations should serve in rotation.

French Congress of Surgery

The Twenty-second French Surgical Congress (*Association française de chirurgie*) will be held at the medical department of the University of Paris from Oct. 4 to 9, 1909, under the presidency of Dr. G. Richelot, member of the Academy of Medicine, and professor *agrégé*. The following subjects will be considered: (1) Surgery of arteries, essayists, Drs. Monod of Paris and Vanderts of Lille; (2) preoperative and postoperative treatment in abdominal surgery, essayists, Drs. Tuffier of Paris and C. Girard of Geneva; (3) surgical treatment in traumatisms of the spine and spinal cord, essayists, Drs. Auvray of Paris and Sencert of Nancy.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 25, 1909.

A Convalescent Home for Officers in Taunus

The well-known lung sanatorium of Dettweiler in Taunus, one of the first private sanatoriums in Germany, was sold after the death of its founder as the business was no longer profitable, and it has been converted into a convalescent home for sick officers, the Offizierheim Taunus. The entire institution is a philanthropic foundation by a number of well-to-do manufacturers; the idea was originated by the general staff surgeon (*Generalstabsarzt*) of the Prussian army, Professor Schjerning. A few days ago the dedication of the home occurred in the presence of the emperor and empress. On this occasion Schjerning was advanced to the rank of a hereditary noble, a distinction which has been also granted to some previous incumbents of his post. The sanatorium is intended for sick and convalescing officers and sanitary officers, and is under the supervision of the minister of war. All forms of hygienic and dietetic curative methods are provided. The home furnishes accommodations for 52 patients and is to be in operation the entire year. The length of treatment up to six weeks is determined by the head physician. The consent of the minister of war is requisite to continue a treatment beyond this period. The institution does not admit patients with external diseases, tumors, tuberculosis or other infectious diseases, or requiring a capital operation. The expenses for care vary according to the respective grade of officers in the service (3 to 6 marks).

XVI International Medical Congress at Budapest

A large number of participants from Germany are to be expected in the Budapest congress which begins in a few days. This is very gratifying with reference to the principal purpose which these congresses fulfill, namely, to secure a good understanding among the representatives of the science and to bring the physicians of all nations into personal relation with one another. There can be no doubt of the great influence for international peace which is thus exerted. The various congresses in which the French and Germans have met together have undoubtedly contributed to the gradual subsidence of the irreconcilable public feeling of the two nations, and it likewise may be hoped that the Budapest congress may also have a favorable effect on the reconciliation of various nations. To be sure in some directions it has worked in opposition to this purpose. The Roumanian physicians have as a body refused to attend the congress, because the Hungarian government has treated the Roumanians badly, and for similar reasons the Bulgarian physicians will stay away. While these political considerations which have nothing to do with a medical congress are a misconstruction of the functions of an international medical congress, certain chauvinistic publications which have recently appeared from an anonymous correspondent in the *Münchener medizinische Wochenschrift* are actually belittling and shameful. There the objection was made against the Hungarian management of the congress that in the enumeration of the official languages, French is placed before German, and the like. It need hardly be feared that intelligent physicians will be affected by such publications, but there may be cranks, who express their patriotism especially by belittling other nations, to whom such remarks will prove infectious. The congress promises to be both a scientific and a social success.

Those who have entered the competition for the international prize offered by the Hungarian government for the best article published in recent years on the etiology of trachoma, are doomed to disappointment. As I understand, this prize will not be given because the jury (Professor Pfeiffer of Breslau, Professor Kolle of Bern, Professor v. Grósz of Budapest) have reached the conclusion that none of the articles offered fulfills the condition of being a notable advance on our present knowledge. This at the same time puts an end to the unedifying strife as to priority regarding the discovery of the trachoma corpuscles, between Professors Greeff and Halberstädter and v. Prowazek. Seven articles were offered in competition for the prize: three from Germany, two from Russia, one from Bulgaria, and one from Egypt.

Fifth International Dental Congress

The international dental congress is holding its session in Berlin according to the resolution adopted at St. Louis in 1904. The invitation was given at that time by Professor Miller, a native American who has had a prominent part in the development of dentistry on both the scientific and practical side. A special reason for holding this year's congress within the walls of Berlin is furnished by the circumstance that the central association of German dentists is now celebrating its semicentennial jubilee. The congress is well attended by dentists of all nations; Professor Waldeyer is honorary president, with Professor Walkhoff of Munich as acting president, and there are many delegates representing various governments. The proceedings of the section for hygiene of the mouth and teeth offer general interest. The question of the establishment of municipal school dental clinics was discussed. It was emphasized that the establishment of such clinics constitutes an important measure for the prevention and suppression of the diseases of the people, especially of tuberculosis. This resolution was passed: The establishment of school dental clinics is an international hygienic demand of

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our time. In addition the value of dental care in the army and navy was insisted on. As usual an exhibition of dentistry is associated with the congress, which furnished interesting and abundant material. At the jubilee of the central association of German dentists a large number of distinguished foreign dentists were elected as honorary members. It was further announced that the executive committee had decided to bestow three great medals for distinguished achievements in dentistry. One of these was received by Professor Dieck, who had performed valuable service for the congress.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 28, 1909.

Postgraduate Instruction and Other Inducements Offered to Army Doctors

A few months ago in this country, when all preparations for war had to be made in haste, it was found that in the Austro-Hungarian army, the number of military surgeons of sufficient experience and the general standard of knowledge of modern sanitation were inadequate. Several inducements to enter the army are now offered to young practitioners. A sum of $1,200 is guaranteed to every able-bodied medical student of the last term of the curriculum, payable in two instalments, at graduation and on entering the army. Provision has been made to enable army surgeons to take, after three years of service, a series of postgraduate classes at the expense of the ministry of war; the classes will be conducted by clinical professors, and hereafter the surgeon will be able to do work at various clinics for two years. Quicker promotion to the rank of regimental surgeon (equal to captain) is obtained by dispensing with a series of theoretical examinations; this grade will now be reached within five years from entering the army. The rank of staff surgeon (equal to the major of the regular army) will be accessible to every regimental surgeon within twelve years from entering the army without any further examination, hitherto a difficulty of first rank. Special stress is laid on practical instruction, for which purpose a ten-week-class will be held for regimental surgeons eligible to the post of staff surgeon; these classes are to comprise instruction and practical work on sanitation of fortresses, evacuation of field hospitals, inspection of the sanitary arrangements of brigades and corps. The regular pay for the medical officer of the army is still low, beginning with $40 a month, $60 for the regimental surgeon, and $100 for the staff surgeon, but there are several other emoluments. One is the expectation of a pension after ten years' service, amounting to about $400 a year at that time, and rising by 10 per cent. for each further year to a maximum of about $1,000. On the other hand, each doctor entering the army must pledge himself to serve at least ten years, unless he should be earlier retired, in which case a pension may also be obtained. It is expected that these advantages will not only serve to complete the required number of military medical officers, but will also have the desirable effect of lessening the number of those men who take up general practice in the towns

BERGEN LETTER

(From Our Special Correspondent)

BERGEN, NORWAY, August 21, 1909.

The Second International Leprosy Congress

The second International Leprosy Congress was held in this city, August 16-19. It was opened by King Haakon and among the distinguished persons in attendance were Hansen, Kitasato and Hutchinson. Excellent opportunities were given for clinical study at the hospitals, one of which, the St. Joergans, was founded in 1410, and is the only remaining medieval lazaretto in western Europe. Physicians only are allowed to visit these institutions. Numerous microscopic specimens were shown. Dr. Hansen exhibiting a slide from the noted Early case of New York. Dr. Hansen is well and favorably known in the United States, where he visited in 1888 in behalf of the lepers of Minnesota. Since 1865 leprosy has decreased in Norway from 2,870 cases to about 400. This is generally attributed to segregation.

Dr. Currie, U. S. M.-H. S., Honolulu, presented an article on "The Status of Leprosy in the United States," and the measures taken for the study and prevention of the disease. In Hawaii there are about 900 cases, 764 of the patients being natives. The government has an investigating station on the island of Molokai.

In the United States 278 cases have been reported, and statistics show a marked increase. There are probably many unrecognized and concealed cases. Dr. Shively, New York, reported three cases in the Presbyterian Hospital and knew of two wealthy patients sojourning at a fashionable hotel. Dr. Ravogli, Cincinnati, reported a patient at large in that city. Dr. Wise, medical director, U. S. N., Washington, recommended thorough investigation of the hygienic conditions where leprosy was found and rigorous segregation to prevent the establishment of new foci. This would not necessarily involve any hardship but rather the reverse; the common affliction creating a bond of sympathy rendering mutual assistance in these institutions very marked.

Professor Ehlers, Copenhagen, gave an account of his experiments to ascertain if the disease could be transmitted by insects (gnats and bedbugs), a hypothesis advanced by Goodhue of Hawaii and Noe of New Caledonia; but he was unable to verify it. Last January he was sent to the Danish West Indies to investigate leprosy on the island of Vera Cruz. On his return he visited the United States, where he confirmed the diagnosis already made by Drs. Woodward and Kenyon in the Early case. [See THE JOURNAL, Sept. 11, page 906.—ED.]

Professor Duering, Dresden, spoke on the question of heredity. In his early experience he considered leprosy to be hereditary, but later observations have led him to believe it to be only infectious; that children of leprous parents, if segregated before infection, will not have it.

Professor MacLeod of the London School of Tropical Medicine gave an exhaustive treatise on recent microscopic study of leprosy. By special methods of staining it is now possible to distinguish the young, old and dead bacilli and it is now known that most of the bacilli found in the tissues are dead. The *Bacillus leprae* has a cladothrix arrangement, branching forms like actinomyces, suggesting that it belongs to the streptothrix class. No medium has been found on which it will grow and no lower animal is susceptible to it. Treatment is still in the experimental stage; various remedies are being tried, good results being reported by some and failures by others. The best result I saw was in a patient shown by Professor Boeck, Christiania, who was kept under favorable hygienic conditions only.

Many other valuable papers were read by distinguished authors. A full report of the proceedings will be published by Johann Ambrosius Barth, Leipsic.

If all medical students would learn one common language it would add greatly to the value of meetings of this kind and allow much valuable time to be employed in medical research that is now used in studying various foreign languages. Esperanto has been adopted as the official language of the International Red Cross, and members after five weeks' study, with two lessons a week, are able to carry on ordinary conversation in any part of the world. With its universal rules and simple construction it is said to be to language what algebra is to mathematics. Certainly the time has arrived when an international language is demanded.

[EDITOR'S NOTE: A further report will be given in THE JOURNAL next week.]

Pharmacology

SERUMS AND VACCINES

Report to the Council on Pharmacy and Chemistry of the Committee on Serums and Vaccines

The Council having decided to consider serums and vaccines for inclusion with New and Nonofficial Remedies, it appointed a committee of the Council to consider these products and to report thereon. The committee submitted a preliminary report and recommended its publication; the recommendation was adopted and in accordance therewith the preliminary report is published below.

W. A. PUCKNER, Secretary.

REPORT OF THE COMMITTEE ON SERUMS AND VACCINES

The committee on serums and vaccines submits the report given below and recommends its publication:

If the term drug is used in the broad sense it will be admitted that the vaccines, viruses and serums constitute one of the most important groups of drugs with which the physician has to deal. Some preparations of this group are specific cures for certain diseases; others are invaluable in prophylaxis and diagnosis. The great importance of exercising some degree of governmental control over these products was recognized by the passage by Congress in 1902, of a law entitled "An Act to Regulate the Sale of Viruses, Serums, Toxins and Analogous Products in the District of Columbia, to Regulate Interstate Traffic in Said Articles, and for Other Purposes." This law antedated by several years the law controlling the substances more usually called drugs.

In order that the physician may obtain information in a concise form concerning this important group of remedies, the Council on Pharmacy and Chemistry voted to include in "New and Nonofficial Remedies" a description of the preparations which may be legally sold in interstate commerce in the United States and which are not in conflict with the rules of the Council. To this end those firms which have licenses to manufacture and sell in interstate commerce remedies of this class have been invited to submit descriptions of their products to the Council. These descriptions will appear later.

It has been deemed advisable to publish at the present time a complete list of the manufacturers, both foreign and American, who have secured licenses. In order to obtain such a license it is necessary for an establishment desiring it to request the Surgeon-General of the U. S. Public Health and Marine-Hospital Service to have an inspection made of its laboratories, methods, products, etc. This inspection is made by an officer of that service, and consists in a careful examination of the stables, laboratory facilities, methods, animals, collection of the serum, standardization, and tests for potency, purity and amount of preservatives. Samples of the products from licensed manufacturers are bought on the open market and examined at frequent intervals in the Hygienic Laboratory of the Public Health and Marine-Hospital Service. The inspection of the laboratories is repeated at least once a year and if insanitary conditions are found, or if the products are not what they are claimed, the license is suspended.

Antidiphtheritic and antitetanic serums are required to conform strictly to the standards which have been established by the United States Government. There being no established standard for the various other products, they are not examined for their therapeutic value in the laboratory, but are tested for the amount of preservative and freedom from bacterial and toxic contaminations. Vaccine virus is examined particularly for its freedom from pathogenic bacteria, especially tetanus, and also for its potency. The list of manufacturers follows:

LIST OF ESTABLISHMENTS MANUFACTURING SERUMS, ETC., LICENSED PRIOR TO JULY 15, 1908

License No.	Establishment.	Products.
1	Parke, Davis & Co., Detroit, Mich.	Antidiphtheritic serum, antitetanic serum, antistreptococcic serum, antigonococcic serum, erysipelas and prodigiosus toxins (Coley), tuberculins, bacterial vaccines and vaccine virus.
2	H. K. Mulford Co., Philadelphia, Pa.	Antidiphtheritic serum, antitetanic serum, antistreptococcic serum, antipneumonic serum, antigonococcic serum, antidysenteric serum, tuberculins, bacterial vaccines and vaccine virus.
3	Dr. H. M. Alexander & Co., Marietta, Pa.	Antidiphtheritic serum, antirabic virus, vaccine virus and tuberculins.
5	Fluid Vaccine Co., Milwaukee, Wis.	Vaccine virus.
8	Cutter Analytic Laboratory, Berkeley, Cal.	Antidiphtheritic serum, antistreptococcic serum, antityphoid serum, tuberculin and vaccine virus.
9	Frederick Stearns & Co., Detroit, Mich.	Antidiphtheritic serum, streptolytic serum, pneumolytic serum.
11	Pasteur Institute of Paris, France.	Antidiphtheritic serum, antistreptococcic serum, antiplague serum, antidysenteric serum, antimeningococcic serum and serum antivenimeux.
12	Chemische Fabrik auf Actien (vorm. E. Schering), Berlin, Germany.	Antidiphtheritic serum and antistreptococcic serum.
14	Health Department of the City of New York.	Antidiphtheritic serum.
15	W. R. Hubbert Serum Laboratory, Detroit, Mich.	Antidiphtheritic serum.
16	National Vaccine and Antitoxin Institute, Washington, D. C.	Antidiphtheritic serum, antigonococcic vaccine, vaccine virus and normal horse serum.
17	Lederle Antitoxin Laboratories, New York City.	Antidiphtheritic serum, antitetanic serum, tuberculins, bacterial vaccines, vaccine virus, antistreptococcic serum, and suspension of lactic acid bacilli.
18	Burroughs, Wellcome & Co., London, England.	Antidiphtheritic serum, antistreptococcic serum, antityphoid serum, antistreptococcic vaccine, antistaphylococcic vaccine, antigonococcic vaccine and antityphoid vaccine.
19	Memorial Institute for Infectious Diseases, Chicago, Ill.	Antidiphtheritic serum.
21	Swiss Serum and Vaccine Institute, Berne, Switzerland.	Antidysenteric serum, antipneumococcic serum, antimeningococcic serum, antiplague serum, antistreptococcic serum, anticholera vaccine, antiplague vaccine, antityphoid vaccine and tuberculins.
22	Institute Bacteriologique de Lyon, Lyons, France.	Antidiphtheritic serum and normal goat serum.
24	Farbwerke, vormals, Meister Lucius & Bruning, Hoechst-on-Main, Germany.	Antidiphtheritic serum, antistreptococcic serum, antidysenteric serum and tuberculins.
25	Tuberculin Society of St. Petersburg, St. Petersburg, Russia.	Tuberculinum purum.
26	Institut de Vaccine Animale, Paris, France.	Vaccine virus.
27	Institut Pasteur de Lille, Lille, France.	Serum antivenimeux.
28	Bacteriologisches Inst. Linger, Dresden, Germany.	Pyocyanase.

Correspondence

Preservation of Historical Data—An Appeal

To the Editor:—Up to the present time there has been no concerted effort made to collect and preserve historical data in regard to the origin, evolution and personnel of our profession in this part of the country. The result of this delinquency has been the total loss of much material that should have been preserved, especially pertaining to medical schools and societies, and biographical matter in connection with the practitioners and teachers of medicine of by-gone days. A good deal of material of this character is still obtainable if a systematic effort is made to locate and preserve it. It is in the possession of individuals, families and private libraries and will eventually be lost. The Western Association for the Preservation of Medical Records was organized in May, 1909, for the purpose of collecting the historical and biographical records of the profession of the west and south. We wish to preserve anything and everything pertaining to western medicine and medical men and are anxious to enlist the active help and support of every member of the profession who is in sympathy with our aims. We want every one to become associated and identified with the work of our association. There are no fees or obligations of any kind. We have made arrangements with the Lloyd library, Cincinnati, Ohio, for the proper housing of the material collected. The latter will be systematically arranged, catalogued and properly preserved so that it can be made available for research work. We are particularly anxious to obtain:

1. Medical journals published in the west prior to 1880.
2. Medical books and pamphlets written or published in the west.
3. Manuscripts and autographs of early western physicians.
4. Old diplomas and other documents of a medical character.
5. Proceedings of medical societies.
6. Reports of hospitals and other medical institutions.
7. Catalogues and announcements of western medical colleges of all "schools."
8. Biographies and portraits of western physicians.
9. Information and material of any kind pertaining to medicine and medical men and affairs in the west.
10. Curios of a medico-historical character.

All contributions should be sent in care of the librarian. In view of the fact that we are performing a labor of love and have no funds, our friends and associates will readily understand why all contributions sent by express or freight should be prepaid so that no expense may accrue to the association. The necessary expenses of the association are at present being met by voluntary contributions of its organizers.

May we not count on your active help and support? We would like to hear from every member of the profession who is interested in the proposed work.

CHARLES A. L. REED, M.D., Chairman.
OTTO JUETTNER, M.D., Secretary.
A. G. DRURY, M.D., Librarian, 710 West Eighth Street, Cincinnati, Ohio.

COMMENT: The importance and value of the work which this new association has undertaken was discussed editorially in THE JOURNAL, April 14, 1909, p. 561.

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Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

IMMUNIFACIENT — A NEW WORD

To the Editor:—Some years ago, while writing a paper I wished to speak of diseases which give immunity from a second attack, that is, which render the organism refractory to a repetition. I could find no such word in the medical dictionaries. In order to escape circumlocution the word "semelincident," meaning "happening but once," occurred to me. This word, a useful one, has been used much, but has not been included in any medical dictionary to my knowledge. It would seem to be an addition to medical nomenclature. T. L. HAZZARD, Pittsburg, Pa.

ANSWER.—May we be so impolite as to suggest a word which seems to us far better? "Immunifacient," from the Latin *immunis*, immune, and *facicns*, making, is a word that hardly requires explanation, being formed on the analogy of "rubefacient." Similarly may be made the word "immunifaction." "Immunifacient" and "immunifaction," so far as we know, are new.

LITERATURE ON DELAYED CHLOROFORM POISONING

To the Editor:—Please give me a list of articles which have appeared in the last year or two on delayed chloroform poisoning.
A. I. LAWBAUGH, Calumet, Mich.

ANSWER.—The following articles on delayed chloroform poisoning have appeared since the beginning of 1907:

"Delayed Chloroform Poisoning" by R. Ramsey, in *Brit. Med. Jour.*, May 25, 1907.

"Delayed Chloroform Poisoning" by J. C. Renton, in *Brit. Med. Jour.*, March 16, 1906; abstr. in THE JOURNAL, April 13, 1907, p. 1301.

"Influence of Oxygen on the After-Effects of Chloroform" by P. Lengemann, in *Mitt. a. d. Grenzgeb. d. Med. u. Chir.* (the Mikulicz Memorial Number); abstr. in THE JOURNAL, March 23, 1907, p. 1070.

"Acidosis (Delayed Chloroform Poisoning)," by A. N. McArthur, in *Intercolonial Med. Jour.*, August, 1907; abstr. in THE JOURNAL, Nov. 2, 1907, p. 1561.

"Acute Yellow Atrophy of Liver Following Chloroform Anesthesia" by N. Guleke, in *Arch. f. klin. Chir.*, lxxxiii, No. 2; abstr. in THE JOURNAL, Oct. 12, 1907, p. 1316.

"Treatment of Delayed Chloroform Poisoning" by A. P. Beddard, in *Lancet*, London, March 14, 1908; abstr. in THE JOURNAL, April 11, 1908, p. 1224.

"Fatal Case of Delayed Chloroform Poisoning" by H. C. Wilson, in *Lancet*, London, Feb. 29, 1908.

"Three Cases of Delayed Chloroform Poisoning" by E. D. Telford, in *Lancet*, London, Feb. 29, 1908.

"Case of Acid Intoxication Following Administration of Chloroform" by H. Thorp, in *Lancet*, London, Feb. 29, 1908.

"Chloroform Necrosis of the Liver" by H. G. Wells, in *Arch. Int. Med.*, July, 1908; abstr. in THE JOURNAL, Oct. 24, 1908, p. 1462.

"Chemistry of the Liver in Chloroform Narcosis (Delayed Chloroform Poisoning)," by H. G. Wells, in *Jour. Biol. Chem.*, October, 1908.

"Chloroform Poisoning," by J. V. Shoemaker, in *Monthly Cycl. and Med. Bull.*, September, 1908.

"Acute Degeneration of Liver Following Chloroform Narcosis," by F. Corbett, in *Jour. Minn. Med. Assn.*, Oct. 4, 1908.

"Fatal Toxemia After Administration of Chloroform," by M. F. Taylor, in *Lancet*, London, Sept. 12, 1908.

"Experimental Study of the Metabolism and Pathology of Delayed Chloroform Poisoning," by J. Howland and A. N. Richards, in *Jour. Exper. Med.*, March, 1909; abstr. in THE JOURNAL, April 3, 1909, p. 1144.

"The Syndrome in Fatal Tardy Chloroform Poisoning," by A. Sippel, in *Arch. f. Gynäk.*, lxxxviii, No. 1; abstr. in THE JOURNAL, May 22, 1909, p. 1725.

"Internal Chloroform Intoxication and Its Treatment," by K. Wirth, in *Wien. klin. Wchnschr.*, Jan. 14, 1909; abstr. in THE JOURNAL, Feb. 20, 1909, p. 672.

"Acute Toxemia After Chloroform Anesthesia," by F. W. Heysett, Freesoil, Mich.; paper read at meeting of Michigan State Medical Society, abstr. published in THE JOURNAL, Aug. 29, 1909, p. 785. The entire article appeared in the *Jour. Mich. Med. Soc.*, April, 1909.

"Necrosis of the Liver After Chloroform Anesthesia," by J. R. Williams and W. D. Becker, in THE JOURNAL, May 8, 1909, p. 1489.

"Chloroform Lesions of Liver," by E. Weill, P. Vignard, and G. Mouriquand, in *Lyon Chir.*, December, 1908; abstr. in THE JOURNAL, Feb. 6, 1909, p. 513.

"Chloroform Poisoning; Liver Necrosis and Repair," by G. H. Whipple and J. A. Sperry, in *Bull. Johns Hopkins Hosp.*, September, 1909.

CARROT SOUP IN INFANT-FEEDING

A correspondent asks for clearer directions in regard to making carrot soup, mentioned in abstract 76 on page 153 of THE JOURNAL, July 10, 1909. Beck says that he makes the carrot soup according to Moro's directions, peeling and chopping one pound of carrots and boiling them in water for an hour or two, then passing them through the finest wire sieve and mixing with one liter of bouillon made from one pound of beef and one liter of water, put on cold, and one teaspoonful of salt. Moro's article was summarized in THE JOURNAL, Sept. 12, 1908, page 955. The original states more definitely that 375 gm. of peeled carrots are chopped and boiled down in water till the total mass forms about 200 c.c., which requires from 30 to 45 minutes. The mass is then forced through the finest wire sieve into one liter of bouillon, and 6 gm. of salt is added. The beef broth is made, as usual, from 500 gm. beef and bone, put on cold. (The article says "50 gm.," but this is corrected in the following issue as a proof error.)

ESTIMATION OF PROTEIDS IN MILK

To the Editor:—Please publish description of method for the estimation of proteids in milk by the phosphotungstic and hydrochloric acid precipitation in Esbach tube.
J. T. THORNTON, Wheeling, W. Va.

ANSWER.—The method referred to is given by T. R. Boggs (*Bull. Johns Hopkins Hosp.*, October, 1906, No. 187) as follows: Twenty-five gm. phosphotungstic acid are dissolved in 125 c.c. of distilled water, and when solution is complete an equal quantity of dilute hydrochloric acid is added. The solution is stable, and keeps for months in a dark bottle. The method of procedure is as follows: The diluted milk is poured into an ordinary Esbach albuminometer tube (reading from 1 to 7 gm. per liter) up to the mark U; the phosphotungstic acid solution is then added up to the mark R; the tube is corked and slowly inverted twelve times, shaking being avoided. The tube is then placed in a rack for twenty-four hours, and the percentage read off at the level of the top of the precipitate. The optimum dilution for human milk is 1 in 10, for cow's milk, 1 in 20; if the proteid content is low a less dilution may be employed. Controlled by Kjeldahl nitrogen determinations the mean error was 0.3 per cent., the extreme 0.7 per cent. Temperatures of from 15 to 25 C. and the presence or absence of cream make no difference in the volume of the precipitate, which attains a minimum after standing twenty-four hours, and does not alter on further standing.

The Public Service

Medical Department of the Army

Changes for the week ended Sept. 11, 1909:

Fisk, Owen C., 1st lieut., M. R. C., granted 15 days' leave of absence.

Morse, Arthur W., major, granted 30 days' leave of absence.

Gilchrist, Harry L., major, ordered to proceed from Fort Omaha, Nebr., to Fort Meade, S. D., for temporary duty.

Knox, Howard A., 1st lieut., M. R. C., granted leave of absence for 10 days, to take effect about Sept. 20, 1909.

Truby, Albert E., major, relieved from duty as commanding officer, Co. A, Hospital Corps, and ordered to proceed to San Francisco, in time to take the transport sailing for Manila, P. I., about Nov. 5, 1909, for duty in the Philippines Division.

Bastion, Joseph E., M. R. C., relieved from duty at Fort D. A. Russell, Wyo., and ordered to report on Oct. 1, 1909, to Col. Valery Havard, President, Army Medical School, for a course of instruction.

Whinnery, Jean C., dental surgeon, relieved from duty at Vancouver Barracks, Wash., and will proceed to San Francisco, in time to take the transport sailing for Manila, P. I., about Oct. 5, 1909, for duty in the Philippines Division.

Hogg, Cassius C., Med. Corps, Va. Nat. Guard, Chittick, Archibald G., Med. Corps, Ind. Nat. Guard, McMaster, John G., Med. Corps, S. C. Nat. Guard, Stanley, J. M., asst.-surgeon, Miss. Nat. Guard, ordered to report on Oct. 1, 1909, to Col. Valery Havard, President, Army Medical School, for a course of instruction in that School.

Shepard, John L., capt., relieved from duty at Fort Sam Houston, Tex., and ordered to Fort Logan, Colo., for duty.

Heath, George D., Jr., 1st lieut., relieved from duty at the Army General Hospital, San Francisco, and ordered to Fort Logan, Colo., for duty.

Schmitter, Ferdinand, 1st lieut., relieved from duty at Jefferson Barracks, Mo., and ordered to Fort Logan, Colo., for duty.

Guittard, Alwin M., 1st lieut., M. R. C., relieved from duty at Fort Logan, Colo., and ordered to sail from San Francisco, Cal., on the transport sailing for Manila, P. I., about Nov. 5, 1909, for duty in Philippines Division.

Hull, Alva R., 1st lieut., M. R. C., relieved from duty at Fort Logan, Colo., at the expiration of his leave of absence and ordered to report to the Commanding General, Department of Texas, for duty in that department.

Archer, William M., Jr., 1st lieut., M. R. C., granted leave of absence for 2 months, about Sept. 8, 1909.

Lynch, Charles, major, Reynolds, Charles R., major, Baily, Howard H., capt., detailed as judges in the inter-company competition in the application of first aid to the injured, Oct. 2, 1909, at Wilkes-Barre, Pa.

Pillsbury, Henry C., 1st lieut., relieved from duty as surgeon of the transport *Logan*, and ordered to the United States, with permission to return by the eastern route.

Raymond, Thomas U., major, granted leave of absence for 25 days, about Sept. 1, 1909.

Ashburn, James K., Burket, John A., Demmer, Charles C., Fisk, Owen C., Foster, George B., Jr., Fox, James S., Haley, James C., Johnson, Thomas H., Jones, Glenn L., King, Charles T., McCornack, Condon C., Napier, Edward L., Austin, Thomas C., 1st lieuts., M. R. C., ordered to report on Oct. 1, 1909, to Col. Valery Havard, President, Army Medical School, for a course of instruction in that School.

Fuller, Leigh A., major, having arrived at San Francisco, will proceed to Fort Adams, R. I., for duty.

Nichols, Henry J., Hanson, Louis H., Hopwood, Lucius L., Freeman, Charles E., Schmitter, Ferdinand, McIntyre, Henry B., 1st lieuts., promoted from 1st lieutenant to captain in the Medical Corps, to rank from June 30, 1909.

Cooper, Alexander T., Gentry, Ernest R., Aydelotte, John T., Kremers, Edward D., De Voe, Ralph G., Klotz, Solomon P., Allen, William H., Cornwall, Delos E., Darby, Taylor E., Shugerman, Harry P., Carr, William B., Holmberg, Carl E., Edwards, George M., Weed, Mark D., Haverkampf, Charles W., Kramer, Floyd, Beery, Harry R., Davis, Arthur O., Sheep, William L., Michie, Henry C., Jr., Herlebower, Roy C., Ferenbaugh, Thomas L., Reynolds, Royal, Casper, Joseph, Schlanser, Adam E., McAfee, Larry B., Gillespie, Julian M., Beeuwkes, Henry, Bowen, Albert S., Woodson, Thomas D., Hill, Felix R., Cooper, Wibb B., Davis, William C., Thearle, William H., Welles, Edward M., Jr., Etter, Harry R., McClelland, Everett S., Lamb, William P., appointed 1st lieutenants in the Medical Reserve Corps, with rank from Sept. 1, 1909.

Carpenter, Alden, dental surgeon, relieved from temporary duty at Fort Wadsworth, N. Y., and ordered to Madison Barracks, N. Y., for temporary duty.

Medical Corps of the Navy

Changes for the week ended Sept. 11, 1909:

Hoyt, R. E., P. A. surgeon, discharged from treatment at the Naval Hospital, Mare Island, Cal., and ordered to duty at that Hospital.

Smith, C. G., surgeon, ordered to duty at the Naval Hospital, Newport, R. I.

Hull, H. F., P. A. surgeon, detached from the Naval Hospital, Newport, R. I., and ordered to the *Des Moines*.

Tolfree, H. M., P. A. surgeon, detached from the *Des Moines* and ordered home to wait orders.

Moffett, L., surgeon, ordered to the *Georgia*.

Crandall, R. P., surgeon, detached from the *Georgia* and ordered home to wait orders.

Raison, T. W., asst.-surgeon, detached from the Naval Hospital, Mare Island, Cal., and directed to wait orders.

Health Reports

The following have been reported to the Marine-Hospital Service, during the week ended Sept. 10, 1909:

SMALLPOX—UNITED STATES

Iowa: Cedar Rapids, Aug. 1-31, 1 case.
Louisiana: New Orleans, Aug. 21-28, 1 case.
Minnesota: Duluth, Aug. 20-27, 1 case.
Montana: Butte, Aug. 12-26, 6 cases.
Ohio: Dayton, Aug. 21-28, 7 cases; Toledo, July 31-Aug. 7, 1 case.
Oregon: (4 counties), May 1-31, 31 cases.
Utah: (11 counties), July 1-31, 110 cases, 1 death.

SMALLPOX—FOREIGN

Algeria: Bona, July 1-31, 19 cases, 10 deaths.
Brazil: Pernambuco, June 1-15, 11 deaths; Rio de Janeiro, July 25-Aug. 1, 3 cases, 1 death.
Ceylon: Colombo, May 8-15, 1 case.
Chile: Valparaiso, June 26-Aug. 7, present.
China: Tientsin, June 26-July 3, 1 case, 2 deaths.
Egypt: Cairo, July 10-29, 1 case, 1 death.
India: Bombay, July 20-Aug. 3, 10 deaths; Madras, July 16-23, 1 death; Rangoon, July 17-24, 3 deaths.
Italy: Genoa, Aug. 1-15, 1 case; Naples, Aug. 8-15, 22 cases, 6 deaths.
Java: Batavia, July 18-24, 2 cases.
Mexico: Chihuahua, Aug. 15-22, 1 case; Guadalajara, Aug. 12-19, 1 case; Veracruz, Aug. 15-22, 2 cases, imported.
Persia: Shiraz, June 7, present.
Russia: Moscow, July 24-31, 14 deaths, Aug. 7-14, 8 cases, 2 deaths; Odessa, Aug. 1-7, 2 cases; Riga, Aug. 7-14, 8 cases; St. Petersburg, July 24-Aug. 6, 28 cases, 10 deaths; Warsaw, June 19-July 3, 3 deaths.
Spain: Barcelona, Aug. 9-21, 11 deaths; Valencia, July 31-Aug. 14, 7 cases; Vigo, Aug. 7-14, 2 deaths.
Tripoli: Tripoli, Aug. 1-7, 8 cases, 2 deaths.

YELLOW FEVER

Venezuela: Maiquetia, Aug. 14-21, 1 case, in suburbs.

CHOLERA—INSULAR

Philippine Islands: Manila, July 10-17, 1 case, 1 death; Provinces, July 3-10, 580 cases, 386 deaths.

CHOLERA—FOREIGN

China: Hankow, July 10-17, 1 case, 1 death.
India: Bombay, July 20-Aug. 3, 37 deaths; Calcutta, July 18-24, 17 deaths.
Indo-China: Saigon, July 10-17, 1 case, 1 death.
Russia, General, Aug. 13-20, 664 cases, 289 deaths; St. Petersburg, 201 cases, 71 deaths.

PLAGUE

Chile: Iquique, July 28, 7 cases, in lazaretto.
China: Hongkong, July 10-24, 10 cases, 7 deaths.
India: Bombay, July 20-Aug. 3, 53 deaths; Calcutta, July 17-24, 17 deaths.
Indo-China: Saigon, July 10-17, 16 cases, 14 deaths.
Peru: General, July 31-Aug. 7, 21 cases, 5 deaths; Callao, Aug. 4-7, 1 case, 1 death.
Russia: Ural District, Aug. 5-13, 19 cases, 19 deaths.
Venezuela: Caracas, Aug. 7-16, 4 cases, 2 deaths.

Public Health and Marine-Hospital Service

List of changes for the seven days ended Sept. 8, 1909:

Eager, J. M., surgeon, granted 1 day's leave of absence, Sept. 7, 1909.

King, W. W., P. A. surgeon, granted 30 days' leave of absence from Sept. 8, 1909.

Currie, D. H., P. A. surgeon, granted 21 days' leave of absence en route to station.

Bahrenburg, L. P. H., P. A. surgeon, granted 13 days' leave of absence from Aug. 17, 1909, on account of sickness.

de Valin, Hugh, asst.-surgeon, granted 3 days' leave of absence en route to station.

Lyon, R. H., asst.-surgeon, granted 1 day's leave of absence in August, 1909, under paragraph 191, Service Regulations.

Doerhake, Wm. A., acting asst.-surgeon, granted 1 day's leave of absence in August, 1909, under paragraph 210, Service Regulations.

Houghton, M. W., acting asst.-surgeon, granted 7 days' leave of absence from Oct. 4, 1909.

Kennedy, S. R. M., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 1, 1909.

MacCaffry, W. B., acting asst.-surgeon, granted 2 days' leave of absence in August, 1909, under paragraph 210, Service Regulations.

Mason, Wm. C., acting asst.-surgeon, granted 6 days' leave of absence from Sept. 19, 1909.

Onuf, B., acting asst.-surgeon, granted 1 day's leave of absence, Aug. 14, 1909, under paragraph 210, Service Regulations.

Simonson, G. T., acting asst.-surgeon, granted 2 days' leave of absence from Sept. 7, 1909.

Tuttle, Jay, acting asst.-surgeon, granted 30 days' leave of absence from Sept. 14, 1909.

RESIGNATION

Surgeon Milton J. Rosenau, resignation accepted by the President, to take effect January 31, 1910.

Society Proceedings

COMING MEETINGS

Amer. Academy of Ophth. and Oto-Laryngology, New York, Oct. 4-6.
Amer. Assn. Obstet. and Gynecologists, Ft. Wayne, Ind., Sept. 21-23.
Amer. Association of Railway Surgeons, Chicago, October 20-22.
Delaware State Medical Association, Dover, October 8.
Indiana State Medical Association, Terre Haute, October 7-8.
Kentucky State Medical Association, Louisville, October 19-21.
Minnesota State Medical Association, Winona, October 13-14.
Mississippi Valley Medical Association, St. Louis, October 12-14.
Pennsylvania, Med. Soc. of State of, Philadelphia, Sept. 27-Oct. 1.
South Dakota State Medical Association, Aberdeen, October 6-8.
Utah State Medical Association, Ogden, September 21-22.
Vermont State Medical Assn., White River Junction, Oct. 14-15.
Virginia, Medical Society of, Roanoke, October 5-8.
West Virginia State Medical Association, Elkins, October 6-8.

SIXTEENTH INTERNATIONAL MEDICAL CONGRESS

Held at Budapest, Aug. 29-Sept. 4, 1909

The Sixteenth International Medical Congress held its formal opening meeting on Sunday, August 29, at 11 a. m., in the banqueting hall of the Municipal Festival Hall.

On August 30, the city officials gave a banquet and reception in honor of the delegates attending the congress.

Opening Ceremony and Addresses of Welcome

The congress was opened by Archduke Joseph, who delivered a brief address in French. The Hungarian minister of public education and public worship then made an address devoted chiefly to hygiene and preventive medicine.

M. Calman de Fulepp, prefect of Budapest, welcomed the congress to the city.

Presidential Address: Progress in Medicine

Dr. Kalman Müller, the president of the congress, was prevented by illness from attending, but his address was read by another officer. It dealt chiefly with the recent developments in medicine. Firm ground in pathologic anatomy having been reached, the developments of bacteriology and parasitology followed, to be reinforced in their turn by the immense masses of work being done in the investigation of the problems of immunity. Cytology has developed, he said, *pari passu*, and everywhere vague methods of inquiry have been replaced by investigation into the life of the cell, making us acquainted with its complicated biochemical and biomechanical relations—and so we have a new hematology. The latest discoveries in physics and theories as to radioactivity have been pressed into the service of medicine, not as auxiliary sciences, but as integral parts of a great whole, while at every step forward a new perspective opens and a view of fresh fields is offered. After enumerating proofs of the scientific progress which has been made on indisputable grounds by modern therapy, the address

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closed with the following peroration: "Medicine is a science of expediency; it originated the necessity to relieve human suffering and as pure rough empiricism. To-day we work on the strictest scientific methods which are at the disposal of the exact physical sciences, and we have successes to point to, to which undeniable statistics bear witness, showing with what weapons medicine can safeguard the life and health of the individual and how fortified she is to protect whole continents against the ravages of epidemics. With full right our breasts are filled with the noble consciousness that no science stands up so wholly in the service of Altruism as medicine."

Report of Secretary

M. Em. de Grósz, general secretary, made his report, which showed that the national committee which abroad assisted in preparing for the congress comprised in all 800 members. With their help the congress is thoroughly international. The latest figures are: America, United States, 202; Argentine Republic, 37; Austria, 235; Belgium, 47; Bosnia, Herzegovina, 9; Brazil, 25; Bulgaria, 18; Chili, 4; Cuba, 6; Denmark, 10; Egypt, 21; France, 281; Germany, 288; Great Britain and Ireland with colonies, 97; Greece, 19; Italy, 170; Japan, 48; Mexico, 3; Monaco, 2; Norway, 2; Netherland, 33; Portugal, 32; Roumania, 10; Russia, 228; Servia, 7; Spain, 67; Sweden, 5; Switzerland, 29; Turkey, 22; Uruguay, 3. Adding the 1,436 Hungarian members, our congress numbers 3,432 adherents, accompanied by 900 members of their families. Governments are represented by 274, universities by 149, municipal and other authorities by 149, medical and other societies by 327, diverse institutions by seven delegates to our scientific assembly.

Recalling the words of Pasteur that "the realm of science embraces the whole of humanity," Dr. Grósz congratulated the congress on its international character.

Addresses of Official Delegates

Addresses were made by the official delegates of the following nations; because of the poor acoustic properties of the hall the speakers were almost inaudible:

The various nations were listed according to the French alphabet; therefore Germany, i. e., Allemagne, began in the person of Professor Uhthoff. Austria, which came next, was represented by Ritter von Huberler. Dr. Victor Desguin spoke for Belgium; Dr. Ivanoff for Bulgaria; Prof. Alejandro del Rio for Chili; Professor Agramonte for Cuba; Professor Salamonsen for Denmark; Prof. A. de Simonena for Spain; Professor Laudouzy for France; Dr. F. W. Pavy for Great Britain; Professor Killionzis for Greece; Prof. G. Baccelli for Italy; Professor Kitasato for Japan; Dr. Guevedo y Zubieta for Mexico; Dr. Gaillard for Monaco; Prof. Louis H. Debayle for Nicaraugua; Prof. V. C. Achermann for The Netherlands; Dr. José Domywer de Olivier for Portugal; Professor de Ott for Russia; Prof. S. E. Henschen for Sweden; Dr. Feurer for Switzerland; Prof. Zoëros Pacha for Turkey, and Prof. A. C. Maggiolo for Uruguay. Prof. Lucas Championnère, the newly elected president of the International Association of the Medical Press, spoke on behalf of that body.

The General Sessions

At the general sessions addresses were delivered in plenary congress by Professor Baccelli, Rome; Dr. E. F. Bashford, London, Cancer; Prof. M. Rubner, Berlin; Professor Laveran, Paris, La Pathologie Exotique; Prof. J. Loeb, Berkeley, Cal., Artificial Parthogenesis and Its Bearing on the Physiology and Pathology of the Cell.

Dr. Bashford's address on cancer appeared in the *Medical Record*, New York, September 4, and an abstract appears in this issue of THE JOURNAL, p. 968.

The Islands of Langerhans of the Pancreas

Dr. E. Laguesse, Lille, France, described his investigations made on the body of an adult man who had been executed. He laid particular stress on the presence of a large amount of secretory material in the cells with the appearance of small, closely packed vacuoles and also of little granules, and maintained that these appearances gave the islands all the characters of a gland with an internal secretion, or "endocrine," and strictly comparable with the appearances of the parathyroids. He considered all the facts that seemed to substantiate his theory of balance (between the internal and external secretions of the pancreas), as against the theory of the perpetual independence and stability of function of the islands of Langerhans, submitting that: 1. In adults there is a demonstrable continuity between some of the islands and the acini, and more directly between the islands and the excretory ducts of the gland. 2. In certain places the mixture of the "exocrine" and "endocrine" gland elements is such as to suggest a transitory state. 3. There is to be found, on the one hand, a whole series of transition forms between the acinar and insular elements, and, on the other hand, an inverse series demonstrating the reconstruction of the acini from the islands. 4. An increase in the insular substance can be provoked experimentally at the expense of the "exocrine" parenchyma of the gland, and pathologic processes can effect the same result. 5. Recently the theory of balance in the pancreas (that is to say, the complete evolutionary cycle of the island with its return to the acinar form) has received experimental proof. In conclusion, there is an intimate connection between the two glandular elements of the pancreas, and a continual balance maintained between them by their mutual metamorphosis during the whole of life.

The Methods of Studying the Diet of the Various Classes of Society

Dr. P. Albertoni and Dr. P. Tullio, Bologna, Italy, presented a joint paper on this subject. In support of the plea of Dr. Atwater of the United States asking physiologists to adopt a uniform plan of research into the dietetic food values of the various social classes, they described the methods they themselves had employed and which they had been led to adopt in the course of a prolonged investigation into the food of the Italian peasant. They determine by direct methods the food values of a certain number of families typical of the class under investigation. During the observations the individual members of the families continue their ordinary occupations under the usual conditions. The dietetic factors are always considered in relation to the physical, moral and economic conditions of the subjects of investigation. To determine the physiologic value of any foodstuff the subjects are given their ordinary diet with the food in question added, and all the food used by them is submitted to a preliminary chemical analysis. It is important that the methods of analysis and of deduction employed by all physiologists investigating this problem should be the same.

The Preventive Treatment of Anaphylaxis

Dr. Besredka, Paris, submitted the following points: (1) Anaphylactic sequelæ can be modified but not entirely prevented by the heating of therapeutic serums to 56 C. for an hour on four days running; (2) ether, or better, alcohol narcosis (however the latter be induced, by the mouth or by hypodermic, peritoneal or rectal injection), confers a complete but transitory immunity; (3) the prophylactic injection of serum that has been heated to 80 C. confers a sure and lasting immunity which is established by slow degrees after a slight reaction; (4) the best way to prevent anaphylactic complications consists in the prophylactic rectal injection of serum, or, better still, the injection of a very small dose of the same serum under the skin, to induce the formation of an anti-anaphylactic substance.

The Physiologic and Therapeutic Importance of the Alkalies and the Alkaline Earths

Dr. A. Curci, Catania, Sicily, discussed the physiologic action of potassium, rubidium, cerium, thallium, sodium, lithium, calcium, strontium, barium, magnesium and beryllium. He contradicted the commonly held view that potassium is a cardiac depressant, maintaining that it stimulates the muscular elements of the heart and the vessels and strengthens its action. It has a similar action on the splanchnic muscles, as have rubidium, cerium, thallium, calcium, strontium and barium, which are all cardiovascular stimulants. Dr. Curci held that lithium was a nervous stimulant, but had no action on the muscular tissues. He stated that the alkaline earths all depressed the functions of the nervous system, but magnesium

and beryllium had no action on the muscles. Dr. Curci advanced a theory of the action of these substances on the various systems in the animal and vegetable organisms. The second part of the paper was devoted to a consideration of the mineral salts in the tissues in health and disease. The interesting observation was made that tissues heated by an inflammatory process absorb salts and other substances more readily than when in the normal state, and this applies to substances such as sodium, which do not normally occur in the tissues. In the third section of his paper Dr. Curci considered the biologic rôle of the metals potassium, calcium and magnesium. While sodium and ammonium increase excitability in the nervous tissues, calcium and magnesium in combination with those tissues control the currents of nervous energy and offer a certain amount of resistance to the conductive power of the nerves. They are accordingly true tonics. He holds that magnesium increases the dynamic power of the nucleus, the vital center of the cell. Finally, he described the influence of the mineral salts on the nutrition and the secretions.

(To be continued)

Marriages

IRVIN S. KOLL, M.D., to Miss Melanie Alice Weil, both of Chicago, September 8.

GIUSEPPE PASCERI, M.D., to Miss Florence L. Smith, both of Philadelphia, September 1.

ARIA LOUIS DERRIGER, M.D., to Miss Ella Jane Spicker, both of Chicago, September 4.

JOSEPH B. BYWATER, M.D., Mount Morris, Ill., to Miss Ethel Dunham, of Manchester, Iowa, recently.

WILFRED E. BLATHERWICK, M.D., Nashua, Iowa, to Miss Anna Evans, at Sheldon, Iowa, August 24.

HENRY S. NEWHART, M.D., Bangor, Pa., to Miss Helen Stockton Bennett of Trenton, N. J., August 28.

FRANCIS A. MANTZ, M.D., Philadelphia, Pa., to Miss Mabel Yule of Owen Sound, Ont., September 9.

ALEXANDER MARTIN HERON, M.D., Lakewood, N. J., to Miss Caroline Madeline Bruening of Brooklyn, N. Y., recently.

OTTO WORTHINGTON LADWIG, M.D., Lost Creek, W. Va., to Miss Calora Beatrice Hardway, at Lost Creek, September 1.

JOHN VAN REED LYMAN, M.D., Eau Claire, Wis., to Miss Mary Sylvester of Minneapolis, Minn., at Chicago, August 21.

GEORGE W. NEWSOME, M.D., Indianola, Iowa, to Miss Amanda Strickland of St. Louis, at Des Moines, Iowa, August 31.

Deaths

Stephen Holmes Weeks, M.D. University of Pennsylvania, Philadelphia, 1864; of Portland, Maine; a member of the American Medical Association; formerly president of the Maine Medical Association; a member of the American Surgical Association; emeritus professor of surgery, and formerly professor of anatomy in the Medical School of Maine, Brunswick; said to have been the first to make and use absorbable drainage tubes; one of the founders of the Maine Sanatorium for Pulmonary Diseases, Hebron, and president of the Maine Association for the Study and Prevention of Tuberculosis; from 1874-1898 surgeon to the Maine General Hospital, Portland, and since that time consulting surgeon to the institution; died in the Maine General Hospital, September 1, four days after an operation for carcinoma of the intestines, aged 73.

John Campbell Sheridan, M.D. Rush Medical College, Chicago, 1879; a member of the American Medical Association and a charter member of the Cambria County (Pa.) Medical Society; director of the Radford Street Emergency Hospital at the time of the Johnstown flood; a member of the National Association of Railway Surgeons and Baltimore and Ohio Association of Railway Surgeons; one of the incorporators of the Conemaugh Valley Memorial Hospital, and a member of its board of managers; died at his home in Johnstown, September 2, from uremia, aged 55. The Cambria County Medical Society, at a special meeting, determined as a fitting mark of respect and honor, to attend the funeral service in a body and accompany the remains to the grave.

Henry Cadwalader Chapman, M.D. University of Pennsylvania, Philadelphia, 1867; Jefferson Medical College, Philadelphia, 1878; emeritus professor of institutes of medicine and medical jurisprudence in Jefferson Medical College; fellow of the College of Physicians of Philadelphia; a member of the American Physiological Society and the American Philosophical Society; chairman of the board of curators of the Academy of Natural Sciences, Philadelphia, since 1875, and prosector of the Zoological Society of Philadelphia; author of standard textbooks on physiology and medical jurisprudence; died suddenly at his summer home near Bar Harbor, Maine, September 8, from hemorrhage of the stomach, aged 64.

Washington Akin, M.D. Albany (N. Y.) Medical College, 1858; a member of the Medical Society of the State of New York; one of the oldest and most esteemed practitioners of Troy, N. Y.; assistant surgeon of the One Hundred and Twenty-fifth New York Volunteer Infantry during the Civil War; formerly city physician of Troy, jail physician and police surgeon for several years; a member of the local board of U. S. pension examining surgeons; attending physician to the Marshall Sanitarium and Sisters' Hospital, Troy; formerly president and secretary of the Rensselaer County Medical Society; died at his home in Troy, August 29, from angina pectoris, aged 74.

Albert B. Henderson, M.D. Detroit (Mich.) Medical College, 1899; a member of the American Medical Association; a veteran of the Spanish-American War; who was commissioned as first lieutenant and assistant surgeon, U. S. Army, in 1901, and was retired on account of disability not incident to the service, June 30, 1904; for several years a resident of Albuquerque, N. M.; died in St. Joseph's Hospital, Denver, August 28, from pulmonary hemorrhage, aged 32.

George Daniel Munger, M.D. St. Louis College of Physicians and Surgeons, 1897; a member of the American Medical Association and National Association of U. S. Pension Examining Surgeons; a veteran of the Civil War; secretary of the local pension board; physician of the Oklahoma County Board of Health; and for more than twenty years a practitioner of Oklahoma City; died in Eureka Springs, Ark., September 4, from kidney disease, aged 78.

James Grier Stanton, M.D. Jefferson Medical College, Philadelphia, 1881; a member of the Delaware State Medical Society; and one of the most prominent physicians of the state; coroner of Camden county, N. J., in 1888; died at his home in Milford, Del., September 4, from the effects of gelsemium taken by mistake for gentian, aged 49.

Charles Winegar Crispell, M.D. University of Vermont, Burlington, 1883; of Kingston, N. Y.; a member of the American Medical Association; for many years assistant surgeon of the Tenth Infantry, N. G. N. Y.; bacteriologic expert for the State Board of Health; died suddenly at his summer home in Shelter Island Heights, Long Island, August 30, aged 49.

Jacob Moyer Hagey, M.D. Rush Medical College, Chicago, 1862; for many years a member of the American Medical Association; once president of the Livingston County (Ill.) Medical Society; a member of the American Public Health Association; died at his home in Mount Morris, N. Y., August 3, from cerebral hemorrhage, aged 76.

James Bordley, M.D. University of Maryland, Baltimore, 1868; president of the Maryland State Board of Medical Examiners from 1893-1896; health officer of Queen Anne County; president of the county medical society and of the Centreville National Bank; died at his home in Centreville, August 30, from arteriosclerosis, aged 63.

Markwell Seward Purdy, M.D. Chicago Homeopathic Medical College, 1884; in 1893 and 1902 health officer of Corning, N. Y.; formerly attending physician to Corning Hospital and for many years proprietor of the Highland Pines Sanitarium; died at his home in Ithaca, N. Y., July 25, from paralysis, aged 50.

James H. McCall, M.D. University of Nashville, Tenn., 1860; a leading citizen of Quitman, Ga., and for many years president of the Merchants and Farmers' Bank of that place; surgeon in the Confederate service throughout the Civil War; died at his home in West Quitman, February 15, aged 70.

Robert Jemison Hargrove, M.D. University of Alabama, Mobile, 1901; of Tuscaloosa, Ala.; a member of the Medical Association of the State of Alabama; died on his plantation near Northport, August 31, from the effects of morphin believed to have been self-administered with suicidal intent, aged 35.

Throud S. Egge, M.D. University of Minnesota, Minneapolis, 1893; a member of the American Medical Association and a

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prominent practitioner of Moorhead, Minn.; was beaten to death in that city while returning from a professional call, September 6, aged 50.

Rudolph Gmelin, M.D. University of Tübingen, Germany, 1854; a volunteer surgeon during the Franco-Prussian War, and later a practitioner of Chicago, Milwaukee, and Elkader, Iowa; died at his home in the latter city, August 3, from heart disease, aged 78.

Thomas E. James, M.D. Medical College of Virginia, Richmond, 1853; a Confederate veteran; for many years a practitioner of St. Petersburg, Fla.; died at the home of his son in Tampa Heights, Fla., August 28, from cerebral hemorrhage, aged 79.

George S. Harkness, M.D. College of Physicians and Surgeons, Chicago, 1884; for several years superintendent of the San Joaquin County Hospital, Stockton, Cal.; died at his home in Stockton, September 2, from heart disease, aged 52.

James P. Davis, M.D. Missouri Medical College, St. Louis, 1875; formerly a member of the American Medical Association; a member of the Minnesota State Medical Association; died at his home in Hammond, Minn., August 29, aged 67.

William T. Griffith (license, Ill., years of practice, 1887); for forty-six years a practitioner of Washington, Ill., and formerly coroner of Tazewell county; died at his home in Washington, September 2, from heart disease, aged 76.

Nicholas Thomas Glenn, M.D. Jefferson Medical College, Philadelphia, 1907; a member of the staff of the Philadelphia Polyclinic Hospital; died suddenly at his home in Philadelphia, September 1, from nervous breakdown, aged 27.

Albert Beach Whitney, M.D. Penn Medical University, Philadelphia, 1863; a member of the state and national eclectic medical societies and the New York Medicolegal Society; died at his home in New York City, August 30, aged 72.

Arthur A. Parker, M.D. Medical College of Ohio, Cincinnati, 1867; a veteran of the Civil War; for twenty years a practitioner of Omaha, Neb.; died at his home in Hollywood, Cal., September 1, from paralysis, aged 68.

Thomas Van Valzah Parker, M.D. Cooper Medical College, San Francisco, 1897; for twelve years surgeon of the Home for Disabled Volunteer Soldiers, Soldiers' Home, Cal.; died in that institution, August 31, aged 37.

Charles Martin Luther Wolf, M.D. Eclectic Medical Institute, Cincinnati, 1905; a member of the State Medical Association of Texas; died in his apartments in Galveston, August 30, from septicemia, aged 28.

James R. MacGuire, M.D. Chicago College of Medicine and Surgery, 1887; of West Rutland, Vt.; died in the Proctor Hospital, Rutland, August 24, after an operation for carcinoma of the stomach, aged 53.

James Howard Woodard, M.D. Eclectic Medical Institute, Cincinnati, 1886; for several terms physician of Jasper county, Mo.; died at his home in Webb City, August 16, from heat exhaustion, aged 57.

Cleveland B. Floyd, M.D. Atlanta (Ga.) Medical College, 1895; of Fairburn, Ga.; died in the Presbyterian Hospital, Atlanta, September 3, from septicemia, due to an operation wound.

Carl Ernest Kurtz, M.D. University of Pennsylvania, 1869; a member of the American Medical Association; died at his home in Chicago, September 6, from heart disease, aged 68.

S. N. Earp (registration, Okla., 1908); of Foss, Okla.; died in Oklahoma City, March 8, from the effects of carbolic acid believed to have been self-administered with suicidal intent, aged 39.

John Thomas Williamson (license, Calhoun county, Ala., 1881); an honorary member of the Medical Association of the State of Alabama; died at his home in Peek's Hill, August 31, aged 70.

John Hanly, M.D. Victoria College, Coburg, Ont., 1869; a member of the Ontario Medical Association; died at his home in Midland, Ont., August 16, 1908, from heart disease, aged 71.

James Surber Jones, M.D. University of Tennessee, Nashville, 1893; was instantly killed by a lightning stroke on his farm in Obion county, Tenn., near Rives, June 30, aged 38.

William Francis Caffrey, M.D. University of Vermont, Burlington, 1897; a member of the American Medical Association; died at his home in Westfield, Mass., September 22, aged 35.

George Christian Haller, M.D. Hahnemann Medical College, Philadelphia, 1897; of Germantown, Philadelphia; died in the Hahnemann Hospital, Philadelphia, September 5, after an operation for appendicitis, aged 37.

Joseph A. Creighton, M.D. Medical College of Ohio, Cincinnati, 1897; of Manitou, Colo.; died at the home of his brother in that city, September 2, from tuberculosis, aged 35.

Emanuel Harrison, M.D. Howard University, Washington, D. C., 1888; a colored practitioner of Wichita, Kan.; died at his home, August 26, from typhoid fever, aged 43.

George Manton Angell, M.D. Harvard Medical School, Boston, 1847; died recently at his home in Atlanta, Ill., from senile debility and was buried September 1, aged 89.

Franklin Allen Gauntt, M.D. Jefferson Medical College, Philadelphia, 1886; of Burlington, N. J.; died at the home of his brother in that city, September 3, aged 51.

Jacob Henry Smith, M.D. Jefferson Medical College, Philadelphia, 1880; died at his home in Mount Holly Springs, Pa., May 22, from meningitis, aged 54.

Anton Samuel Dahlstrom, M.D. John A. Creighton Medical College, Omaha, 1900; of Omaha; died at the Omaha General Hospital, August 27, aged 42.

Edwin R. Thomas, M.D. Louisville (Ky.) Medical College, 1893; of Perkins, Okla.; died at his old home in Thomasville, Miss., August 19, aged 49.

Henry Morrin, M.D. Toledo (Ohio) Medical College, 1890; a veteran of the Civil War; died at his home in Toledo, September 2, aged 64.

Arthur Burleigh Smith, M.D. Dartmouth Medical School, Hanover, N. H., 1875; died at his home in Chelsea, Vt., May 17, aged 57.

Homer M. Hamilton, M.D. Medical College of Ohio, Cincinnati, 1889; died at his home in Columbus, Ohio, September 2, aged 39.

John Huber Swanson, M.D. University of Michigan, 1886; died at his home in Weston, Iowa, August 30, aged 50.

Howard Lattin Wood, M.D. Albany (N. Y.) Medical College, 1899; died at his home in Gorton, Conn., in May, aged 40.

Henry Radcliffe Crocker, M.D. London, 1875; F.R.C.P., London, 1887; M.R.C.S., England, 1873; formerly vice-president and honorary treasurer of the British Medical Association; a member of many foreign dermatological societies; pupil of, and successor to Tilbury Fox as physician to the Skin Department of University College Hospital, London; author of a text-book on "Diseases of the Skin," which is one of the most complete and accurate works on dermatology in the English language, and of an "Atlas of Skin Diseases," also a standard work, in which all principal diseases of the skin are portrayed by beautifully executed illustrations; died suddenly in Engelberg, Switzerland, August 22, aged 64.

Medical Economics

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Third Year—First Month, Third Weekly Meeting

SURGERY OF PLEURA

EMPYEMA: Etiology, primary or secondary. Pathological changes in pleural membranes, character of exudate, Prognosis, effect of age, different micro-organisms. Treatment, indications for aspiration, incision, resection of rib, Bryant's aspiration drainage. Delayed operation, indications for Fowler's operation, "exploratory resection" of Beck, Estlander or Schede operation.

HEMOTHORAX AND HYDROTHORAX: Indications for surgical treatment in each.

PNEUMOTHORAX: Diagnosis and surgical treatment.

SURGERY OF LUNGS

ABSCESS OF LUNGS: Diagnosis, value of *x*-ray. Treatment. Technic of incision and drainage.

GANGRENE OF THE LUNG: Symptoms and diagnosis. Indications for surgical treatment.

PULMONARY TUBERCULOSIS: Present status of the surgical treatment.

BRONCHIECTASIS: Indications for surgical treatment.

Medicolegal

Death From Angina Pectoris After Injury—Expert Testimony and Framing Questions From Medical Works

The Supreme Court of Missouri, Division No. 1, says, in the case of MacDonald vs. Metropolitan Street Railway Co., that the tendency of the expert testimony on behalf of the plaintiff was to show that the party for whose death it was sought to recover damages suffered from angina pectoris. The plaintiff put in proof from competent physicians tending to show that angina pectoris, or the diseased condition of the heart and its appurtenant arteries and valves to which the pain so named attaches, in at least some of its phases, could naturally be caused by shock and injury and that it might be reasonably expected to gradually develop from small beginnings until it finally progressed far enough to carry its victim off. It was argued, however, that there was no evidence that the death was directly or proximately caused by the injuries sustained in the accident to which it was attributed, the argument being built up, for example, on the views that the deceased went about his labors after his injury, that physicians were unable for several months to determine the existence of heart trouble, that angina pectoris can arise from so many and different independent causes (even from undiscoverable ones) that to predicate it of his injury was mere conjecture, furnishing no legal basis for the judgment. But counsel argued ill, the court thinks, in that behalf.

Evidently the fact that the man returned, in a crippled way, to his avocation could not be conclusive. It was a circumstance, but one for the jury. The heroism of facing one's fate in civil life, like a soldier does his in war, and performing one's duty as best he can until the end comes, is not inseparable from a prior injury eventually ending one's life. Labor, under such conditions, is referable to grit and courage, or the lack of these, to temperament, duty. If he had done no work at all after his injury, that fact alone would not have made a case for the plaintiff, nor did his doing it destroy her case.

Nor does the court have to go to physicians to find that medical science has not developed to the point where a physician, however wise, can tell to a certainty whether a disease exists in the heart for one, two, three, or four months after an injury, or that such insidious diseases not uncommonly quite baffle diagnosis. It must be borne in mind, too, that physicians' theories under oath on the witness stand are merely advisory in character. Juries can take or leave that advice on the condition only that it seems reasonable or not to them; and, because physicians disagree, it is not valid reasoning to say that juries should also disagree, or should take the advice of one set as against that of another, or should throw to the winds their common sense, and, with minds littered up with conflicting medical advice, be unable to come to any agreement whatever, even as sailors, tossed to and fro by contrary winds, reach no harbor.

In this case there was substantial testimony that the party in question came to old age hale and hearty. On a certain day in October he was thrown by a derailment against the framework of a stove in a car and struck a tremendous blow. The mere visible sign of his injury at the time was not great, but it would be dealing only with the surface of things to stop with that visible sign. The controlling fact in the case (deducible from its history) was that, traceable to that injury, he was never again a well man, and that, traceable to that same injury, after a rally at the start, he went steadily down hill to his grave. A blow such as he received was shown to be a probable cause of angina pectoris. As the court sees it, there was no link out in the chain of the evidence on which the jury could rationally base their conclusion that the injury caused his death. Independent causes were suggested and conflicting theories were developed before the jury. It was for them to say which theory was the most reasonable.

In framing questions on the cross-examination of experts, counsel held in hand medical books and formulated questions from their language. The books were not read to the jury, but the jury could see that the examined read from them. This method of cross-examination was objected to, but counsel was permitted to adopt the scientific terminology of the author and put propositions to the witnesses obviously asserted by him, the jury being repeatedly cautioned that what was read from the book was not evidence and the jury should pay no attention to it; that the only thing they could consider was the evidence that fell from the lips of the witness along the line of verifying the propositions put by the examiner. It is held that there was no error in this.

It has been said in a Missouri case that it is within the discretion of the court to permit medical books to be read to the jury, but undoubtedly the better and generally accepted doctrine is that the contents of such books are not admissible as independent evidence. The grounds of exclusion have been put on, first, such evidence is not delivered under oath; second, there is no chance of cross-examining the author; third, medicine is not an exact science; physicians disagree; medical theories are subject to frequent modification and change.

But while not independent evidence—and the question is a vexed one—yet there is a legitimate use of such books, at least, on cross-examination, where the testimony has taken wide range and where skilled witnesses, testifying as experts, base their testimony on their knowledge derived from books as well as experience, as in this case. Here the defendant's counsel had notified some of his witnesses that he was appealing to, and asking his physicians to draw from, their medical knowledge running back, say 2,000 years, and which could only be preserved, if at all, in book form from the days when Socrates ordered a cock sacrificed to Esculapius, the god of medicine, and Hippocrates and Galen practiced physic in Greece and Italy. Under such circumstances the court sees no reason why counsel could not frame a proposition in medical science in the exact language of the author, and ask the witness whether he agreed to it, so long as this was done under the due guard of the cautionary instructions given by the court.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

September 4

1 *Cancer in Man and Animals. E. F. Bashford, London.
2 Yellow Fever Prophylaxis in Cuba. A. Agramonte, Havana, Cuba.
3 Intestinal Dyspepsia. M. Einhorn, New York.
4 Forensic and Clinical Aspects of Transitory Frenzy. H. C. B. Alexander, Chicago.

1. **Cancer in Man and Animals.**—Bashford, in this article read at the International Medical Congress, gives an account of the work of the Imperial Cancer Research Fund, of which he is director. The liability of all races of mankind and of all vertebrates to cancer has been established, and the experimental reproduction of carcinoma and sarcoma has become a routine laboratory procedure. This has put the investigation of cancer on a sound biologic and experimental basis, and rapid progress has been made in defining the nature of the disease. It is found that cancer is as frequent in India as in England. The Hindoos are vegetarians but the disease occurs irrespective of vegetarian diet. It also occurs in savage as well as in civilized races; yet there is no indication of any epidemic character of the disease among savage races. The commission has shown that cancer may be reproduced experimentally by inoculation. All the clinical and pathologic features of cancer were produced in animals by cell proliferation from a few cells introduced. It is now agreed that infection plays no part in the experimental transference of cancer; that it is a true transplantation of living cells. In animals, as well as man, cancer is associated with certain periods of life, being frequent as age advances. In studying the increase of cancer, Bashford states that it is found that savage nations are not suited for this investigation because of the absence of reliable vital statistics. The increase in the number of deaths from cancer in any country is not actual, but is parallel with increased accuracy in vital statistics. Statistics from hospital and from cancer censuses are fallacious, Bashford asserts, owing to inaccurate diagnosis

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and other causes. There is an increase in the number of recorded cases, but this is probably not a real increase, but only an increase of records. The relative incidence of cancer on different parts of the body shows a large number invading the stomach; among females the generative and mammary organs are involved in two-fifths of fatal cases, and another two-fifths involve stomach, liver, intestines and rectum. In man they are more frequent in throat, mouth, stomach and rectum. This may be due to chronic irritation of these sites from difference in habits. The sites of predilection show the existence of endogenous factors aside from irritation, that is, innate peculiarities of the organs involved. The incidence of cancer at certain sites in different races is due to habit, and determined by external irritation. Any part of the normal covering of the body may acquire cancerous properties. This has an indirect significance only. The question of heredity is not yet settled, and many facts are opposed to the congenital origin of cancers. The cancer cells are not of embryonic nature, but highly specialized. Cancer has no analogy with any form of infective disease. In the laboratory where thousands of mice have cancer neither they nor the laboratory workers, says Bashford, have ever been known to take it. In animals there is no evidence of production by cancer of toxic products. Death is not due to these, but to the growth of the tumor and its nutrition. Cystic changes in the growth of the cancer are shown. Exacerbations of growth occur, alternating with periods of slow growth. Some parts grow slowly, others rapidly. The nature of immunity in cancer is not yet fully known.

Boston Medical and Surgical Journal

September 2

5 Surgery of the Stomach. J. B. Deaver, Philadelphia.
6 Importance of Distinguishing Simple Round Ulcers of the Duodenum from those Ulcers which Involve the Pylorus or are Above It. E. A. Codman, Boston.
7 *Presence of Tubercle Bacilli in the Blood in Tuberculosis. M. A. Dalley, Boston.
8 Desirability of Further Extension of Undergraduate Nursing Service. F. W. Patch, Farmington, Mass.
9 *Results of Mayo's Modification of Gilliam's Operation for Shortening the Round Ligaments. H. W. Baker, Rochester, Minn.
10 Studies in Psychotherapy (continued). B. Sidis, Boston.

7. Tubercle Bacilli in the Blood.—Bailey endeavored to confirm Rosenberger's findings. Blood from 17 patients with tuberculosis (2 with miliary and 15 with advanced tuberculosis) inoculated into guinea-pigs failed in every instance to produce the slightest evidence of the disease. Stained smears of the blood from the 17 individuals showed occasionally bodies resembling tubercle bacilli. Bailey therefore concludes (1) that the only reliable test for demonstrating tubercle bacilli is animal inoculation and the production of the characteristic tuberculous lesions with the bacilli in them; (2) that virulent tubercle bacilli are not ordinarily demonstrable in the circulating blood of tuberculous patients. Staining tests (on which Rosenberger based his arguments and conclusions) are not reliable. The results he obtains may be explained in at least three ways: (a) as attenuated tubercle bacilli; (b) as artefacts; or (c) as acid-fast bacilli of some sort introduced as a contamination in some one of the steps employed in staining, or deposited on the slide by the fingers in the process of cleaning or manipulation.

9. Mayo's Modification of Gilliam's Operation.—This operation is described by Baker as follows: After making a median incision, the uterus is brought up into view and the round ligaments grasped at the elective point, generally about one and one-half inch on either side of the uterus, then a pair of curved (Kelly) clamps are passed with the curved surface next to the fascia above the rectus muscle to the internal ring; here the clamps are turned, the point now being down, passed through the ring and out along the round ligament, underneath the peritoneum, to the place of election marked. Here the peritoneum is broken through and the round ligament grasped, the snap removed and the clamp pulled back, inverting the ligament on itself to the abdominal incision. After this has been repeated on the other side, the two ligaments are sutured together and the incision closed, having replaced the uterus in its normal position, being held there by its normal supports.

New York Medical Journal

September 4

11 *Value of the Test Meal in Gastric Diagnosis. C. Graham and D. Guthrie, Rochester, Minn.
12 Tuberculosis and Congestion. S. A. Knopf, New York.
13 *True versus Pseudo-Opotherapy. C. E. de M. Sajous, Philadelphia.
14 Contagious Theory of Tuberculosis. J. B. White, New York.
15 The So-Called Thymus Death. J. P. C. Griffith, Philadelphia.
16 *Prolapse of Uterus, Vagina, and Rectum. J. M. Lynch, New York.
17 Primary Tuberculosis of the Mammary Gland. W. Fuller, Chicago.
18 *Astasia-Abasia. H. Stern, New York.
19 Necessity for Routine Examination of the Rectum in Intestinal Diseases. D. H. Murray, Syracuse, N. Y.
20 Esophagoscopy in the Removal of Foreign Bodies. R. H. Johnson, Baltimore.
21 *Simple Method for Treatment of Suppurating Bubo. J. A. Murtagh, Fort McKinley, Rizal, P. I.

11. Test Meal in Diagnosis.—Graham and Guthrie regard the test meal as having a place in gastric diagnosis, but caution against its too liberal interpretation independent of the clinical history. They have analyzed carefully the gastric findings in 250 cases of ulcer of the stomach and duodenum and 150 cases of carcinoma, which have all come to operation and the correctness of the diagnosis established. Attention is directed to the fact that three-fourths of the patients with ulcer who come to the operating table do not show the high acids as commonly thought to be the case. Age and chronicity tend to reduce the acidity. Young subjects with developing ulcers have high acid tests. Decided food remnants in the test meal are regarded as a surgical indication. The authors insist that a large number of cases of gastric cancer must be diagnosticated independently of the test meal findings; yet, on the other hand, there are a few cases in which the subjective symptoms are indefinite, and where the test meal throws the first light on the real pathologic condition present. The latest statistics from the authors' laboratory show that 71 per cent. of the cancers of the stomach developed on an old ulcer, so that they now frequently send a patient to the operating table with a diagnosis of cancer on old ulcer, based solely on the history of chronic ulcer with recent exacerbation, loss of weight, weakness, etc. One should not wait for a palpable tumor, cachexia, and the typical text-book test meal.

13. Abstracted in THE JOURNAL, June 5, 1909, p. 1866.

16. Prolapse of Uterus.—The points of special interest in connection with Lynch's case were the existence of a complete prolapse of the uterus and vagina, with multiple adenoma and multiple diverticula in one patient, a rather rare anatomic and surgical curiosity, and an uneventful recovery after many operations in the case of a woman, 71 years of age, with a subsequent gain in weight.

18. Astasia-Abasia.—Stern considers his case one of astasia-abasia of the third, the lightest degree. When it resembled somewhat certain early types of locomotor ataxia, however, the characteristic features of tabes, including the syphilitic history, were missing, and there were no fulgurant pains, and no Argyll-Robertson pupil; the deep reflexes were present, there were no defects of speech and there was absence of Romberg's sign. And again, all muscular incoordination vanished as soon as the patient was on his back.

21. Treatment of Suppurative Bubo.—Murtagh reports a method of treatment devised by Capt. William L. Keller, Medical Corps, U. S. A., which materially hastens the period of healing in this condition and insures rapid recovery without a noticeable scar or other cosmetic defect. The practice of Captain Keller has been for the past seven years to destroy the source of infection in the chancroidal ulcer with the actual cautery, thus converting a specific infectious ulcer into a simple granulating surface. This he does by a thorough application of the Paquelin cautery to the several chancroidal ulcers. His next step is to incise the healthy skin in an area 1 to 1½ inches below the bubo, passing the knife through the healthy tissue, and reaching the bubo, which is incised subcutaneously. If pus is present it is evacuated by pressure, and by means of a curette every portion of the diseased gland is removed through the same incision. This curettage should

include all portions of the gland and adjacent glands in close proximity to the infected gland. The thorough irrigation of this subcutaneous glandular cavity with a 1 in 2,000 bichlorid solution completes the operation as far as the removal of the diseased glandular tissue is concerned. More or less hemorrhagic oozing may be present after this, but it is almost completely checked by the injection into the cavity of a small quantity of hydrogen peroxid, which is not allowed to remain and distend the cavity, but is promptly removed by thorough irrigation with sterile water.

After repeated expression by pressure of bloody liquid that may appear at the lips of the wound, the operation is completed by the filling of the cavity by injection of a 10 per cent. iodoform emulsion in petrolatum. A firm compress with a generous dressing is then applied and retained by a spica bandage; the patient is returned to bed where he remains for at least three days, when he may be allowed to move about. The dressing is renewed in about the same interval, and as often as may be required later on account of the slight discharge which may appear for several days after the operation. At subsequent dressings it may be required that the cavity be refilled by the iodoform petrolatum emulsion.

The average length of time required by this treatment for restoration to duty has been about twelve and one-half days. These figures are based on a series of 150 patients treated by Captain Keller during his service at Fort William McKinley, Rizal, P. I., and over 50 patients treated by Murtagh in a period of four months succeeding Captain Keller's departure from this station.

Lancet-Clinic, Cincinnati

August 28

22 Surgery of Harelip and Cleft Palate. B. M. Ricketts, Cincinnati.
23 Intestinal Obstruction. H. H. Hines, Cincinnati.

Northwestern Lancet, Minneapolis

August 1

24 Abdominal Emergencies. H. B. Sweetser, Minneapolis.
25 Physician's Investments: Farm Mortgages. A. E. Dickey, Minneapolis.
26 Medical Edinburgh. S. P. Rees, Minneapolis.
27 An Apparently New Disease. W. E. Clark, Frederick, S. D.
28 The Kelly Pad as an Adjuvant in the Treatment of Gastrointestinal Disorders. J. T. Leland, Herman, Minn.

August 15

29 *Plea for the Systematic and Universal Examination of School Children's Eyes, Ears, Noses and Throats. F. Allport, Chicago.
30 Physicians' Investments: Bonds and Mortgages. M. W. Matteson, St. Paul.
31 Indications for Removal of the Middle Turbinate. J. G. Parsons, Sioux Falls, S. D.
32 *Advance in Anesthetic Technic, as Practiced at the Sisters Hospital, Hot Springs. W. J. McRoberts, Hot Springs, S. D.
33 Frostbite and its Treatment. A. Kuhlmann, Melrose, Minn.
34 Undescended Testicle Complicated with Appendicitis. C. J. Holman, Mankato, Minn.

29. Published in *Hygiene and Physical Education*, May, 1909.

32. **Advance in Anesthetic Technic.**—In the operating-room of the Sisters' Hospital at Hot Springs, S. D., there has been developed a method and technic which, according to McRoberts, is radically different from that in use elsewhere. The mask is of the Allis type and dimensions, improvised from sulphite fiber covered with zinc oxid plaster, and has the Allis face-piece of rubber, a floor of wire on which are placed some layers of gauze. At its narrow end is inserted an electric-light socket, with an extension cord to the electric-light current. Within the mask is placed a 16 candle-power incandescent globe covered with several layers of gauze. The top of the mask is covered with dentists' rubber-dam tissue, in which is cut an opening about the size of a silver quarter.

The anesthesia is begun with chloroform. The current is turned on with the mask about three inches from the patient's face. The drop method is used and continued until the patient acknowledges sleepiness, which is usually in from three to five minutes; then ether is substituted for the chloroform. The ether can is not opened in the usual manner; it is merely punctured with the point of a needle and from this comparatively infinitesimal aperture the ether is forced out by the heat of the hand, and sprayed on the gauze over the light, whose heat so rapidly volatilizes the ether that in from three to seven minutes more operative anesthesia is secured without any struggling sense of suffocation, or hypersecretion of saliva or bronchial mucus. The advantages of this method of anesthesia are said to be (1) lessened amount of anesthetic; (2) absence of the danger of ether pneumonia, due to the chilling of the lung tissue; (3) absence of kidney complications because of the very small quantity of anesthetic to be eliminated through this channel; (4) almost total absence of postoperative nausea and vomiting; (5) total absence of a hypersecretion of saliva and bronchial mucus; (6) freedom from excitement.

Buffalo Medical Journal

August

35 The Poise of Scholarship. H. R. Hopkins, New York.
36 Two Cases of Brain Tumor. H. P. Frost, Buffalo.
37 Chronic Cholecystitis. H. M. Spofford, Batavia, N. Y.

Surgery, Gynecology and Obstetrics, Chicago

August

38 *Surgical Treatment of a Most Frequent Cause of Dysmenorrhea and Sterility in Women. S. Pozzi, Paris, France.
39 *Habitual Dislocation of Patella. F. E. Bunts, Cleveland, Ohio.
40 *Case of Kraurosis. J. Frank, Chicago.
41 Primary Ovarian Pregnancy; Report of Case Combined with Extrauterine Pregnancy. C. C. Norris, Philadelphia.
42 Obstruction of the Intestines. T. C. Witherspoon, Butte, Mont.
43 Principles of Intestinal Suturing. F. G. Connell, Oshkosh, Wis.
44 *Colics of the Appendix. W. Van Hook, Chicago.
45 *Treatment of Tetanus. W. Hessert, Chicago.
46 Diaphragmatic Hernia. E. H. Beckman, Rochester, Minn.
47 *Submucous Lipoma of Gastrointestinal Tract. D. Stetten, New York.
48 *Modern Operative Treatment of Fractures of Patella. A. P. Heineck, Chicago.
49 *Two Umbilical Tumors of Probable Uterine Origin. S. W. Goddard, Brockton, Mass.
50 *Plastic Tuberculous Peritonitis. C. H. Parkes, Chicago.
51 Practical Points in Application of the Bismuth Paste in Chronic Suppurative Diseases. E. G. Beck, Chicago.
52 Diffuse Suppurative Appendicitis versus General Peritonitis. C. E. Humiston, Chicago.

38. Abstracted in THE JOURNAL, May 15, 1909, p. 1615.

39. **Habitual Dislocation of Patella.**—Bunts' case was an extremely aggravated one, and rendered the patient practically helpless without crutches and only able to follow such occupations as might be performed in the sitting posture. The operation performed consisted of: (1) A linear incision of 6 inches on the inner side of the knee, through the skin and subcutaneous tissue down to the capsule of the joint; (2) a curved incision through the capsule; (3) overlapping of the cut edges of the capsule by pulling the inferior margin under the superior margin by mattress sutures while the patella was shoved forcibly inward; (4) suturing of the free edges of the capsule to the lower portion of capsule; (5) closure of wound without drainage; (6) sterile dressings and plaster bandage, which were allowed to remain on for four weeks. Both knees were operated on at the same time and repair without infection followed in both. In general, the method was the same as that in the Mayo operation for umbilical hernia. The final results have been only partly satisfactory. The patient is able to walk without crutches. The left knee has remained cured up to this time, but she has had several attacks of pain in her right knee.

40. **Kraurosis.**—In Frank's case complete excision of the diseased skin was productive of complete relief from all symptoms.

44. **Colics of the Appendix.**—The causes of colics of the appendix are always due to some form of obstruction. When a diagnosis of colic of the appendix has been made it is wise to remove the obstruction inasmuch as recurring attacks are likely, sooner or later, to be associated with infection, when, of course, true appendicitis is to be diagnosticated. Indeed, many cases of appendicitis can, by a little inquiry, be found to have been long preceded by recurring attacks of slight colic. In these cases of colic, it is never safe to diagnosticate the presence of a stone or of adhesions. It is wise to recognize that a slight obstruction is always present; furthermore, that this obstruction in many instances will not be found by inspecting the appendix. But the most important thing is that the removal of the appendix does away with the disease and leaves the patient again in health.

45. **Treatment of Tetanus.**—Hessert reports 15 cases; acute cases, 10; mortality, 90 per cent.; chronic cases, 5; mortality, 20 per cent.; total cases, 15; mortality, 55 per cent. The series includes cases in which the patients were treated med-

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ically, with antitoxin subcutaneously, with antitoxin intraneurally, and with spinal injections of magnesium sulphate. He concludes that prophylactic injections of antitetanic serum in cases of suspicious wounds are unquestionably of great value in preventing the development of tetanus. After the onset of the disease the local treatment of the wound, aside from the usual antiseptic measures, should include the use of balsam of Peru, a remedy which has been shown to possess some antagonistic action on the tetanus toxin. None of the many special methods of injecting the antitoxin has proved of value, and some of them are too dangerous for general use. Subcutaneous injections of serum in massive doses will yield equally good, if not better results. Spinal injections of magnesium sulphate solution, by eliminating the spasms, will tide many a patient on to recovery who would die under any form of serotherapy alone. This form of treatment, Hessert thinks, is destined to lower the death rate from tetanus more appreciably than anything which has been advanced heretofore, including the discovery of the specific serum. Great care should be exercised in deciding the dosage.

47. **Submucous Lipoma of Gastrointestinal Tract.**—Stetten reports two personal cases in which a successful operation was done, and reviews 75 additional cases recorded in the literature. One of his cases was a large, lobulated, polypoid, submucous lipoma of the ileum producing chronic ileocecal intussusception and intermittently protruding at the anus. Laparotomy, Maunsell resection and anastomosis, was followed by recovery. The second case was one of sessile, submucous lipoma of the transverse colon. Resection and end-to-end anastomosis were followed by recovery.

48. **Fractures of Patella.**—Heineck's paper is a most exhaustive exposition of the entire subject of fracture of the patella, presenting in the main an analytic review of over 1,100 recorded cases treated during the last ten years by the open operative method. He also considers congenital dislocation of the patella, traumatic rupture of the quadriceps extensor tendon, and of the ligamentum patellæ. The length and nature of the article prohibit abstracting.

49. **Umbilical Tumors of Uterine Origin.**—A year previously, during a catamenial period, the patient noted some redness and tenderness about the umbilicus; two months later at a similar time a small tumor appeared in the abdominal wall close to the umbilicus. This tumor increased in size but slightly and most of the increase came in the two weeks just preceding her admission to the hospital. The tenderness and pain which at first were evident only during the menstrual periods had been constant for some months though most marked just before, during, and for a week after menstruation. About and including the umbilicus was a rather deep-seated spherical, slightly tender, fixed mass of rather firm consistency and about 2 cm. in diameter. In the navel itself was a thin, yellowish crust; a sinus could not be demonstrated; the skin over the tumor was not red. Examination of the abdomen was otherwise negative. Examination *per vaginam* showed only vaginismus and a moderately retroverted uterus. The growth was excised (including the navel) with a portion of the adjacent peritoneum and sheath of the rectus muscle. The former was not involved in the growth; to the latter the growth was adherent. The convalescence was without note and the patient was free from recurrence one year after operation. The second patient had a slight bloody discharge from the navel without pain or tenderness with each menstruation. Independent of the umbilical disorder she had had in the past three years attacks of sharp pain beneath the right costal border accompanied by vomiting, chills and jaundice. At the umbilicus was a small, irregularly shaped papillomatous tumor, 2 cm. in diameter, with three distinct projections covered with normal appearing skin. At the top of the largest projection was a pin-hole opening capped with dried blood. The tumor was soft, freely movable, not tender and apparently superficial. The tumor was confined to the skin and fat outside the aponeurosis. The peritoneal cavity was opened, and the gall-bladder and stomach regions were explored; these were found normal. Convalescence was uneventful except for the development of malaria. One and a half years later there was no recurrence.

So far as can be detected by the microscope the same histologic structure appears in both tumors. Furthermore, the clinical picture of one closely resembles that of the other, and though there is no way of proving absolutely their precise nature and origin, both clinical and histologic facts point strongly to misplaced uterine tissue as their common starting point. The type of gland formation, the tall columnar ciliated epithelium, supported by a cellular submucous layer, in which are numerous clusters of red blood cells, and the presence of blood in the lumina of the alveoli, are all very suggestive of uterine tissue. Although the tumors in either case did not manifest themselves till middle life, the author believes it is safe to assume that they are the recent development of embryonic remains.

50. **Plastic Tuberculous Peritonitis.**—While dissecting a cadaver, Parkes found a mass in the left side of the abdomen extending up under the diaphragm to about the level of the tenth rib above, and below to the level of the anterior superior spine of the ilium, on the left side to the abdominal wall and on the right to the bodies of the vertebræ. By inspection the mass was found to be about the size of an ordinary stomach and, in fact, at first seemed to be the stomach in an abnormal location. The surface was glistening, smooth, and, to the naked eye, entirely free from tubercles. There were irregularities over all, and these appeared like coils of intestines within a large, thin hernial sac. The mass was somewhat movable, but on closer examination was found to be adherent to the left and the posterior abdominal wall. Above, it seemed to lose itself in the transverse mesocolon, entirely obliterating the fossæ around the duodenojejunal junction; below it was free and intact, except at a point where the inferior mesenteric artery presented itself. At this point there was a foramen about three-fourths of an inch in diameter, through which escaped the ileum. From this point to the ileocecal junction there remained about one foot of the ileum, free in the abdominal cavity. Above the mass, and resting on it, part of the jejunum was plainly seen, and later, on careful dissection, this portion of the intestine was found to enter the mass from above.

On incising the sac it was found to consist of three distinct layers, easily separable and joined together by fine friable filaments of connective tissue, as if the layers had been glued together by exudate, the serum having become absorbed. Inside of the sac were found all the small intestines, except the duodenum and the upper three inches of the jejunum and about the last twelve inches of the ileum. The intestinal loops within the sac were free from adhesions and also microscopically free from tubercles or nodules of any kind; the mesentery was entirely intact and normal, except that at one or two points there were a few miliary tubercles. Under the peritoneum could be palpated small gland-like nodules about the size of a pea. These nodules on section and microscopic examination proved to be retroperitoneal lymph glands which showed a marked round-cell infiltration, abundant leucocytes and many distinct tubercles with giant-cell formation. A piece of the sac itself was sectioned and the slide under the microscope showed well-organized connective tissue with scattered leucocytes, and endothelial cells coating both inner and outer sides.

Illinois Medical Journal, Springfield

August

53 *Diagnosis and Differential Diagnosis of Gastric Ulcer. C. Graham, Rochester, Minn.
54 *Surgical Treatment of Non-Perforative Gastric Ulcers. A. J. Ochsner, Chicago.
55 *Surgical Treatment of Perforating Gastric and Duodenal Ulcer. Report of Case. Recovery. J. E. Allaben, Rockford, Ill.
56 Prognosis of Valvular Heart Lesions. E. K. Kerr, Chicago.
57 Muscular Power in Tenotomy and Tenoplasty. A. Steindler, Chicago.
58 Immunity. W. C. Bouton, Waukegan.
59 *Directions Given the Patient after Tonsil Operation, Including Treatment of Postoperative Hemorrhage. E. Pynchon, Chicago.
60 *Early Immunization, Essential Function of the Tonsil. R. H. Good, Chicago.
61 Treatment of Gonorrhea in Young Girls. R. Vail and M. C. Lincoln, Chicago.
62 Diagnosis of Syphilitic Eye Lesions by Means of *Spirochæta pallida* and the Seroreaction of Wassermann. B. C. Corbus, Chicago.

53, 54, 55. Abstracted in THE JOURNAL, June 12, 1909, p. 1952.

59. Published in the *Virginia Medical Semi-Monthly*, May 21, 1909, and in the *Laryngoscope*, June, 1909.

60. Published in the *Laryngoscope*, June, 1909.

Mississippi Medical Monthly, Vicksburg

August

63 Etiology and Prophylaxis of Malaria in the Mississippi Delta. J. T. Longino, Jonestown.
64 Our State Medical Laws. H. X. Richardson, Gulfport.

Journal Tennessee State Medical Association, Nashville

August

65 *Some Inoperable Tumors Successfully Treated by the *X*-Ray. W. S. Lawrence, Memphis.
66 *Surgical Types of Abdominal Tuberculosis. W. D. Haggard, Nashville.
67 Acute Glaucoma from the Standpoint of Those Other than Ophthalmologists. E. C. Ellett, Memphis.
68 *Comparison of the Various Tuberculin Tests in the Early Diagnosis of Tuberculosis. W. Litterer, Nashville.

65, 66, 68. Abstracted in THE JOURNAL, May 1, 1909, pp. 1451, 1452.

St. Paul Medical Journal

August

69 Telling the Truth to Patients with Serious or Hopeless Disease. M. H. Richardson, Boston.
70 Prostatic Enlargement. E. L. Kannary, St. Paul.
71 Invagination of Bowel Due to Inflammation at Base of Appendix. J. T. Rogers, St. Paul.

Ohio State Medical Journal, Columbus

August

72 Pitfalls in Urinary Diagnosis. B. Lewis, St. Louis.
73 *Radical Operations for Cancer of Uterus. J. H. Jacobsen, Toledo.
74 Rôle of Myocardium in Chronic Valvular Disease. G. A. Fackler, Cincinnati.
75 Value of Leucocyte and Differential Counts in Acute Surgical Conditions. F. Fletcher, Columbus.
76 *Blindness in Hamilton County with Special Reference to Ophthalmia Neonatorum. L. Stricker, Cincinnati.
77 Progress in Proctology. G. B. Evans, Dayton.

73. Abstracted in THE JOURNAL, June 5, 1909, p. 1873.

76. **Ophthalmia Neonatorum.**—Some of the particularly interesting points brought out by Stricker as the result of his investigation are the following: Blindness due to the infectious diseases sums up a total of 62 cases, or 20 per cent. due to scarlet fever, measles, mumps, cerebrospinal meningitis, typhoid, smallpox and trachoma. School inspection is the greatest safeguard against all of these. No civilized community ought to expose its school children to the ravages of the infections when regular and systematic examination of all children at school by competent physicians will lead to the early detection of a contagious disease in a child. When isolation of a child with scarlet fever or measles follows at once, when all the other children in that family, or even those living under the same roof, are isolated and not allowed to return to school until the danger of contagion is past, when fumigation of the schoolroom follows every time infection is detected, just to that degree are the dangers of an epidemic averted. Twelve cases (4.02 per cent.) were due to nearsightedness, high degrees of myopia. This condition can likewise be ameliorated by the proper lighting of school rooms, seeing that the light falls from the proper direction; the character of the type used in school books and the proper adjustment of desks and chairs. Methyl or wood alcohol has been the cause of blindness in 3 (possibly 4 cases), as the result of inhalation. Hundreds have died from drinking it. Its sale should be made a felony, since denatured alcohol (which contains but 2 per cent. of wood alcohol) can be used for everything for which wood alcohol is now used, and the dangers are greatly minimized. Lead poison caused 4 cases of blindness. These 2 causes are responsible for 2.62 per cent. of cases of blindness. In a total of 175 cases, equal to 58.90 per cent., the causes could justly be considered as preventable.

Journal Kansas Medical Society, Kansas City

August

78 Cholelithiasis from a Surgical Standpoint. H. G. Welsh, Hutchinson.
79 The Ideal Relation between Doctor and Druggist. W. A. Klingberg, Elmo.
80 The Exploratory Incision as an Aid in Diagnosis. R. A. Stewart and J. W. Young, Hutchinson.
81 What the Douglas County Medical Society Means to Me. S. T. Gillespie, Lawrence.
82 Rabies and its Diagnosis. A. B. Jeffrey, Topeka.

Long Island Medical Journal, Brooklyn

August

83 *Perithelioma of Brain. W. L. Duffield, Brooklyn.
84 Case of Tuberculous Mastitis. W. Lintz, Brooklyn.
85 Congenital Vaginal Atresia. C. Jewett, Brooklyn.
86 Renal Varix. P. M. Pilcher, Brooklyn.
87 Hygienic and Dietetic Treatment of Summer Diarrhea. Le G. Kerr, Brooklyn.

83. **Perithelioma of Brain.**—Though the symptoms of tumors of the frontal lobe are reasonably well defined, Duffield's case was misleading, due to the pain and tenderness over the mastoid region, the irregular temperature and the rather high leucocytosis. The patient, a woman of 40, was assisting in running a boarding-house, and was possibly under a slightly greater mental strain than she had been accustomed to. She retired one evening and slept continuously until the following evening, when she was aroused. Prior to this time she had complained of feeling tired and had behaved in a slightly absent-minded way. On being aroused from her sleep she walked to her home, a distance of several blocks, but continued in a very somnolent condition, would sleep all day, but on being aroused for her meals would complain bitterly of pain in her head. This pain lasted for about five days, and then her condition became one of lethargy. She knew her friends and family, but was slow to understand and slow to answer questions. Intellect was sluggish. There was no delirium, tremor, paralysis, vomiting, headache or complaint of pain. Bowels were regular and appetite was good. She was apparently in normal health, except for the mental condition. There was tenderness over the lower portion of the left mastoid; no discharge was apparent from ear.

Four days later the patient was in bed and in heavy sleep from which she was aroused with some difficulty, and then only in a condition of lethargy. Temperature and pulse were the same as before, respiration was 27, easy and rather shallow. Heart, lungs and abdomen were apparently normal. She had a cough with profuse expectoration, but this was said to be no worse than usual. Pupils were the same as before. Sensations in arms and legs were slightly delayed to pin prick. Lethargy was deeper; she was fairly bright in the morning, answering questions and speaking at times, but became very heavy and drowsy later in the day. There was increasing tendency to incontinence of both bladder and rectum. Tenderness over mastoid was not so great as before. No discharge from the ear could be detected, but on the introduction of a cotton carrier a slight moisture could be made out with a very foul odor. The patellar reflex was normal. There was slight tenderness over the left jugular, and she complained several times of pain in ear. On the following day the general condition was about as before, she seemed to understand all questions, but answered, if at all, by movements of the head, only speaking at rare intervals. There was equal tenderness over both mastoid regions; the left tympanic membrane was absent, and the entire cavity was covered with epithelium. The right tympanic membrane was perforated and retracted. Hearing in both ears was moderately good. The left eye was apparently normal; there was slight cloudiness on the nasal side of the right retina. A partial mind blindness was apparent, she could promptly call by name some familiar objects, but was unable to attach a name to others.

Her condition failed gradually, and after five months a slight tremor of the right arm and leg made its appearance. Although the coma was very much deeper and the woman could not be aroused, slight pressure over the left mastoid would cause her to try to draw her head away. At the postmortem a moderately hard, grayish-white tumor, 2¾ inches long, 2½ inches broad and 1¾ inches high, was found occupying the anterior upper portion of the left frontal lobe. The upper surface of this tumor was covered by a thin layer of brain tissue, and that side of the tumor toward the median line crossed the longitudinal fissure and pressed lightly on the right frontal lobe. The tumor was smooth, without any capsule, but its limits were sharply defined and it shelled out of the brain substance without any difficulty.

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Denver Medical Times and Utah Medical Journal

August

88 *Free Suppurative Perforative Peritonitis. F. M. McCartney, Denver.
89 Tetany Complicating Gastric Dilatation with Hyperchlorhydria, Gastric Ulcer and Hour-Glass Contraction. W. Senger, Pueblo.
90 Work Done by a Country Physician in Hawaii. E. S. Goodhue, Hawaii, H. T.
91 Pharyngeal, Laryngeal and Tracheal Diphtheria; Mastoiditis. F. F. Waxham, Denver.
92 Prophylactic Medicine: Its Practical Application in Everyday Affairs. E. J. Scannell, Trinidad.
93 Physostigmin. W. C. Abbott, Chicago.
94 Infant Feeding: Heubner School. F. P. Gengenbach, Denver.
95 Prolapse of Iris. G. E. Robinson, Provo, Utah.
96 The Social Evil—Its Penalties: Ostracism, Disease, Death. F. Clift, Provo, Utah.

88. **Suppurative Perforative Peritonitis.**—McCartney reports twelve cases in which the patients were treated by the Murphy method, both at the time of the operation and after the operation, without any mortality.

Journal of Nervous and Mental Disease, Lancaster, Pa.

August

97 *Surgical Treatment of Athetosis and Spasticities by Muscle Group Isolation. S. I. Schwab, and N. Allison, St. Louis.
98 The Thalamic Syndrome. I. H. Coriat, Boston.

97. Abstracted in THE JOURNAL, July 31, 1909, p. 405.

Archives of Internal Medicine, Chicago

August

99 Systemic Blastomycosis. B. W. Fontaine, M. Haase, and R. H. Mitchell, Memphis, Tenn.
100 *Glandular Fever. J. E. Burns, Baltimore.
101 Administration of Tuberculin. E. C. L. Miller, Detroit.
102 *Tests for Tubercle Bacilli in the Circulating Blood. E. C. Schroeder, and W. E. Cotton, Bethesda, Md.
103 Relapsing Fever of Panama. S. T. Darling, Ancon, Canal Zone.
104 Stokes-Adams Disease. T. B. Barringer, New York.

100. **Glandular Fever.**—Burns reports 9 cases. The first 6 occurred in children from 2½ to 5 years of age. The last 3 occurred in the family of Patient 6 after she had left the hospital, and, though not seen in the acute stage, are reported because the clinical history corresponded. In this family epidemic only adults were affected. The cases reported occurred in February and March, and first appeared two months after the children's ward had been isolated on account of the measles, scarlet fever and diphtheria in the city. The first case began on February 15, the second on February 16, the next two on February 17, and the last two on February 18. The first case in the family of Patient 6 developed twenty-four hours after the child had reached home. Her mother was the first member of the family affected; none of the family had seen the child for two and a half months previously. From this one would conclude that the incubation period could be as short as 24 hours, although most writers think it is from 7 to 9 days. All the patients showed a leucocytosis of from 18,000 to 26,400 during the disease.

102. **Tubercle Bacilli in Circulating Blood.**—Schroeder and Cotton attempted to confirm Rosenberger's findings that tuberculosis is always a bacteriemia. Their tests were made entirely with the blood of tuberculous cattle. In every case the blood was drawn from the jugular vein of the tuberculous animal and injected in its fresh, naturally warm state into the peritoneal cavity of a guinea-pig. The total number of cattle from which the blood injections were made is 42, and these represent a considerable variety relative to the severity and extent of the tuberculous disease with which they are affected, from animals that would not have been suspected to be diseased without a tuberculin test to a cow so badly affected that a calf of which she became the mother, a little less than a year before her blood was used for guinea-pig injections, was born affected with tuberculosis contracted from antepartum exposure to her tuberculous body. The total number of guinea-pigs injected was 104. Of these 16 died within a few days after the injection and no doubt as a result of it, 3 died of intercurrent affections, but not until a sufficient period of time had passed for lesions of tuberculosis to become clearly manifest, and 85 guinea-pigs lived until they were killed after a lapse of from seven and one-half to eleven weeks, or an average for all of seventy days after they were injected. The 3 guinea-pigs that died of intercurrent affections showed no lesions of tuberculosis on postmortem examination, and 84 of the 85 guinea-pigs that lived until they were killed showed no lesions of any kind on autopsy. One guinea-pig of the 85 showed lesions very slightly resembling tuberculosis, but these were proved by microscopic examinations and guinea-pig inoculation tests to be free from tubercle bacilli.

The authors failed utterly to find tubercle bacilli in the blood of tuberculous cattle which were examined microscopically in accordance with the method described and used by Dr. Rosenberger. The negative results of the microscopic examinations are confirmed by the negative results obtained with 88 guinea-pigs, each of which received an intra-abdominal injection of blood from a tuberculous cow or bull. As the number of cattle from which blood was injected into the 88 guinea-pigs is 42, and as these cattle represented practically all stages of tuberculosis, from mildly affected, recent cases to old and completely generalized cases, the authors feel that the work shows beyond the remotest doubt that tuberculosis is not to be classified in any sense of the word as a bacteriemia. They criticize Rosenberger's method.

Ophthalmology, Seattle, Wash.

July

105 Amblyopia ex Anopsia—Its Nature and Treatment. A. A. Bradburne, Southport, Eng.
106 Restoration of Vision in Strabismus. A. A. Bradburne, Southport, Eng.
107 *Metastatic Carcinoma of the Choriold. G. F. Suker, and L. N. Grosvenor, Chicago.
108 Industrial Eye Injuries. W. Johnston, Spokane, Wash.
109 Tuberculous Iridocyclitis with Organized Exudate in the Anterior Chamber. J. W. Stirling, Montreal, Can.
110 Metastatic Gonorrheal Conjunctivitis. Demonstration of Gonococcus in Smears and Culture. H. McKee, Montreal, Can.
111 *Clinical and Pathologic Study of Transferred Ophthalmitis. C. A. Oliver, Philadelphia.
112 Nodular Opacities of Cornea. W. Zentmayer, Philadelphia.
113 Eye Changes in Chronic Lead Poisoning; Report of a Case. E. W. Alexander, San Francisco.
114 Collapse of the Sclerotic During Cataract Extraction. R. P. O'Connor, U. S. Army.
115 Refraction for Men who Shoot. J. N. Reeve, Washington, D. C.
116 *Hyperchlorhydria and Amblyopia. D. J. Maloney, Waterbury, Conn.

107. **Carcinoma of Chorioid.**—The conclusions drawn by Suker and Grosvenor from a study of 64 cases of metastatic chorioidal carcinoma, are as follows: (1) It does not occur before the age of puberty, usually between 30 and 60, nor directly thereafter; (2) the invariable presence of a primary carcinoma in some other organ; (3) the great tendency for bilaterality; (4) exceedingly rapid loss of vision; (5) the uniformity in the lodgment of the embolus in the ciliary arteries; (6) the uniformity in its character of growth; (7) the short duration of life after its appearance in the eye; (8) the rapidity of its growth along paths of least resistance; (9) the rarity of perforation of the globe; (10) the rarity of epibulbar tumors; (11) the practical immunity of the papilla for its first appearance; (12) the extensive detachment of the retina; (13) the relatively large percentage of minus tension; (14) the great tendency of having the three types of carcinoma represented in the same individual tumor—scirrhus, medullary and adenomatous; (15) the proneness of direct involvement of the blood vessels; (16) the rarity of invasion of the retina and disc by the tumor cells, either by extension or tertiary metastasis; (17) the seeming regularity with which the tumor encircles the disc; (18) the numerous areas of necrosis and hemorrhages; (19) the characteristics in general being opposite to those of sarcoma.

111. **Transferred Ophthalmitis.**—The patient in Oliver's case was struck in the right eye with a piece of steel. There was a small jagged wound situated in the inferior temporal quadrant of the eyeball, through which some blood and vitreous humor were oozing. Vision was reduced to light perception throughout a large and well-shaped field. The fellow eye was normal in every respect. The parts were immediately cleansed, atropin was instilled and a foreign body removed (a minute piece of steel) from the interior of the organ, through the original wound of entrance, by the hand magnet of Parker. A compress bandage was applied and treatment was continued. One week later, the external wound was healed. In three weeks' time the injured eye was practically well, and the fellow eye seemed normal in every respect and functionated properly. Two months later the patient returned, com-

plaining of pain in the previously injured right eye, this having appeared without assignable cause.

The organ was extremely tender to touch. There was intense ciliary injection, with marked hyperemia. The lens was cataractous, and the rest of the media were so hazy that it was impossible to obtain any more than the faintest red reflex from the fundus. The left eye was irritable; vision was slightly lowered; accommodation was disturbed; the media were somewhat hazy, and the fundus was rather indistinct. There was no injection and the eyeball was not tender. The right eyeball was removed, giving instant relief to the gross symptoms, and allowing the fellow eye, under appropriate treatment, to return rapidly to its original normal condition and proper functioning. Oliver regards the case of interest for several reasons: The immediate removal of the foreign body; the primary non-involvement of the ciliary region in the accident; the very early recognition of the first appearance of the transfer of the disease process; the rapid disappearance of the transferred condition by the employment of appropriate medical therapy; the constantly sustained continuance of therapeutic measures to the very time of enucleation of the offending organ; the one coarse exacerbation which so happily proved to be the warning before the secondarily affected eye had passed the danger line; the immediate cessation of all of the coarse signs and symptoms after the enucleation; the quick and happy recovery from the slight, though fully recognized secondary condition by appropriate treatment, after the primarily affected eye had been removed; and the proof of the lesson that it is always best to remove an offending eyeball the moment that its good fellow is involved to the slightest degree.

116. **Hyperchlorhydria and Amblyopia.**—Maloney records a case in which hyperchlorhydria was primarily the cause of the amblyopia. The resultant decomposed foods and gases acting on the vasomotor system and through this affecting the visual center, were the secondary and direct cause.

American Journal of Physiology, Boston

August

117 Hydrolysis of Ox Muscle. T. B. Osborne and D. B. Jones, New Haven, Conn.
118 Rates of Digestion in Cold-Blooded Vertebrates.—The Influence of Season and Temperature. O. Riddle, Chicago.
119 Relation of Ions to Contractile Processes.—Influence of Various Electrolytes in Restoring Muscular Contractility after Its Loss in Solutions of Sugar and of Magnesium Chlorid. R. S. Lillie, Woods Hole, Mass.
120 Absorption of Fats Stained with Sudan III. L. B. Mendel, New Haven, Conn.

American Journal of Surgery, New York

August

121 *Pruritus Ani. G. A. Humphreys, New York.
122 Accidents and Complications of Gynecologic Operations. S. M. Brickner, New York.
123 Utility of the Vaginal Douche. B. Robinson, Chicago.
124 Surgical Treatment of Retrodisplacements of the Uterus. C. A. Stewart, Duluth, Minn.
125 Fractures of the Radial Shaft. Rotation Deformity (Occurrence and Diagnosis) and Aluminum Plates. W. S. Thomas, New York.

121. **Pruritus Ani.**—Humphreys removes a portion of skin and mucous membrane when pruritus ani exists without piles, the remaining skin being elevated or separated from subjacent tissues, so as to destroy as much as possible the nerve supply. This operation takes away all the diseased skin, except two strips from three-eighths to one-half inch wide, selected where the tissue seemed to be least diseased. The outer limit of the incision begins from one to one and a half inches from the anus, but this is dissected up so as to include the columns or crypts of Morgagni when there is thickening or abnormality of these. This operation is a compromise between the procedures of Matthews and Ball. All the skin is not removed, so there need be no fear of stricture resulting. All the diseased skin not being left there is reason to believe that should the itching recur it would not be so troublesome as before. Another feature is that the remaining strips of skin are stretched and thinned out by cicatricial contraction at the site of the resected portion. When the sphincter is much hypertrophied a medium incision was made posteriorly, thus cutting the few transverse fibers and separating the longitudinal fibers of the external sphincter for one inch posterior to the anal margin. This incision does not extend so high as the internal sphincter. This is done with the idea of lessening the power of the sphincter and thus diminishing the interference with the return circulation from this area.

After the operation is completed, the denuded surfaces are covered with iodoform gauze and a Lynch modification of Pennington's tube of small diameter is inserted and retained in place by adhesive strips across the buttocks. The bowels are confined three days by small doses of deodorized tincture of opium. At the end of two or three days the tube is withdrawn after irrigating the rectum through the tube and introducing three ounces of olive oil; or cascara or compound licorice powder is given to secure a soft movement. The denuded surfaces heal by granulation in from two to four weeks. The parts are irrigated daily and dressed with a 5 to 10 per cent. mixture of balsam of Peru in castor oil. There is little or no pain after the tube is removed and the patient need not remain in bed longer than three days.

Journal of Inebriety, Boston

Summer

126 The Psychologic Basis of Inebriety. T. A. Williams, Washington, D. C.
127 Prohibition in the South. H. O. Marcy, Boston.
128 Suicide and Alcohol. A. W. Holsholdt, Stockton, Cal.
129 Congenital Morphinism. O. Jeanings, Paris, France.
130 Laboratory Study of Inebriates. A. MacDonald, Washington, D. C.
131 Inebriety and Moral Degeneracy Cured by Trephining. H. L. Northrup, Philadelphia.
132 Four Hundred and Six Cases of Alcoholism. J. F. Hultgen, Chicago.

Military Surgeon, Washington, D. C.

August

133 Hygiene of a Soldier. F. M. Bruner, 7th Inf., N. G. Cal.
134 The first-Aid Corps of the American Red Cross as an Auxiliary to the Army. G. M. Blech, Chicago.
135 Surgical Operations Performed at the U. S. Naval Station, Tutuila, Samoa, Jan. 1 to Dec. 31, 1908. P. S. Rossiter, U. S. Navy.
136 System of Venereal Prophylaxis and its Results. E. O. J. Eytinge, U. S. Navy.
137 Report of Bombay Medical Congress. H. J. Nichols, U. S. Army.

Dominion Medical Journal, Toronto

August

138 Our Profession and the Laity in Preventive Medicine. H. J. Hamilton, Toronto.
139 *Advantages and Disadvantages of Pasteurized Milk. J. A. Amyot, Toronto.
140 Craniotomy versus Cesarean Section in Slightly Contracted Pelves. S. M. Hay, Toronto.
141 Hyperthyroidism—Diagnosis and Treatment. A. McKinnon, Guelph, Ont.
142 *Lupus (?) of the Nose. G. Boyd, Toronto.

139. **Pasteurized Milk.**—Amyot advocates the pasteurization of milk, because there is no positive chemical or physical evidence to show that this alters the milk. The taste is not changed; there is no odor acquired; there is no change in appearance; the cream line is not altered. Nor has anyone brought forward, he asserts, any real reliable evidence that the nutritive value of the milk is altered. The milk is thus rendered harmless so far as bacteria are concerned.

142. **Lupus (?) of the Nose.**—In the case reported by Boyd, there seemed to be no doubt about the original diagnosis, viz., syphilitic gumma. The character, appearance, situation and fairly rapid growth of the lesion with the external signs, apparently admitted of no doubt on this score. And the subsidence under specific treatment, although taking much longer than usual (4 months), seemed to support the diagnosis. But the recurrence later, the absence of the characteristic odor when bony necrosis is present, and the failure of specific medication, faithfully taken and often in heroic doses, scarcely to influence the symptoms, caused much doubt to arise as to its real nature. The first microscopic examination again was puzzling. There was nothing suggestive of either syphilis or tuberculosis in the sections examined. Later the nodular mammilated appearance of the infiltration, with distinct nodules on the turbinals, seemed to point to lupus as the probable cause.

Interstate Medical Journal, St. Louis

August

143 Hebosteotomy versus Cesarean Section, when the Latter is only Relatively Indicated in Cases of Narrow Pelvis. E. G. Zinke, Cincinnati.
144 Hopeful Outlook of the Tuberculosis Problem in the United States. A. S. Knopf, New York.

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Bulletin Johns Hopkins Hospital, Baltimore

August

145 *Tuberculin Treatment Among Dispensary Patients. L. Hamman, and S. Wolman, Baltimore.
146 Work in the Phipps Dispensary for Tuberculosis of the Johns Hopkins Hospital. L. Hamman, and S. Wolman, Baltimore.
147 Marmorek's Serum Treatment of Pulmonary Tuberculosis. S. Wolman, Baltimore.
148 *Employment of Patients with Arrested Tuberculosis. A. M. Forster, Towson, Md.

145. **Tuberculin Treatment Among Dispensary Patients.**—The total number of patients who received the tuberculin treatment is 112. But Hamman and Wolman report only those who were under treatment at least 90 days—a group of 71 cases. However, only 57 of the cases lend themselves to this classification, the remaining 14 being patients in whom the diagnosis of pulmonary tuberculosis can not be made with assurance, although they present very suggestive signs and symptoms. In these 14 probable cases the patients were treated in every way as if they were positively tuberculous, and they all improved as regards these symptoms, and in a fair number, the suggestive physical signs, too, vanished. The 57 cases comprise 13 incipients, 16 moderately advanced, 28 far advanced, of which 4 incipients, 6 moderately advanced, 25 far advanced, a total of 35, show tubercle bacilli in the sputum.

Of the 57 patients, 10 were apparently cured, in 16 the disease was arrested, 12 were improved, 18 were progressive, 1 died (a far-advanced case). Of the 18 progressive cases, 4 patients improved as regards symptoms, 10 were unchanged as regards symptoms, and only 4 were worse as regards symptoms (all 4 far-advanced cases). Of the 13 incipients, only 1 was progressive; of the 16 moderately advanced, 2 were progressive; of the 28 far advanced, 16 were progressive (1 died). The average gain in weight for the entire group is 6½ pounds. The maximum gain in weight is 41 pounds. Among those who lost weight are 3 apparently cured individuals. The average maximum dose of tuberculin per class, for the entire group was 0.005 gm. The early cases and those patients who do well take the largest dose. The largest dose administered was 1.0 gm. In the far-advanced and progressive cases, the patients reach the limit of tolerance early. That is, they soon attain a dose beyond which it is impossible to force them without unpleasant consequences. The duration of treatment is based rather on the progress of the case than on the condition at the beginning of treatment.

148. **Employment in Arrested Cases.**—Forster brings out the following points: Agriculture presents the best form of exercise for tuberculous patients from a therapeutic as well as an economic standpoint. The farm colony is not only the best possible means for the after-care of consumptives, but also, as it develops, will be the best agent for encouraging the much-wished-for movement toward the land. These colonies, if properly located and managed, can be made self-supporting. They present the only way for handling tuberculous families. They should be located in close conjunction with a sanatorium and a hospital for advanced cases, and should also be near large centers of population. No work should be undertaken without endeavoring to keep the entire program in sight. Forster does not claim that the farm colony will solve the tuberculosis problem, but that it is essential to have it in cooperation with all the other necessary forces.

Atlanta Journal-Record of Medicine

August

149 A Retrospect. J. H. McDuffie, Atlanta.
150 Glioma of the Retina. H. S. Persons, Montgomery, Ala.
151 Iritis. T. E. Mitchell, Columbus, Ga.
152 Extrauterine Pregnancy. H. S. Bruce, Opelika, Ala.
153 Pelvic Operations in the Female, *per Vaginam*. W. L. Cooke, Columbus, Ga.
154 Pathology—Human and Industrial. J. Burke, Manitowoc, Wis.
155 Modern Clinical Diagnosis. R. Lattimore, Savannah, Ga.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal

August 21

1 *Infection of Tuberculosis. C. T. Williams.
2 Congenital Malformations of Palate, Face, and Neck (concluded). A. Keith.
3 *Light, Pigmentation, and New Growth. W. Watkins-Pitchford.
4 Radium and Radiography in Skin Disease. L. Wickham.
5 Treatment of Nevus by Radium. H. L. Jones.
6 *Etiology and Treatment of Pruritus Ani. J. G. Tomkinson.
7 Cutaneous Actinomycosis. S. W. Allworthy.
8 Supposed Risks Attending *X*-Ray Treatment of Ringworm. R. H. Cooper.
9 Existence of an Idiosyncratic Susceptibility to Roentgen Rays. J. Hall-Edwards.
10 Practical Uses of Static Electricity. F. H. Humphris.
11 *X*-Rays in Gynecology. E. B. Hazleton.
12 Notification of Tuberculosis of the Lungs in Sheffield. H. Scurfield.
13 School Medical Inspection. E. Magennis.

1. **Infection of Tuberculosis.**—The various sources of infection in pulmonary tuberculosis and the extent to which they are elements in causation or spread of the disease are the topics discussed by Williams. Husband and wife infection, he says, is established beyond all doubt. Infection through the air passages by inhalation was, until recently, generally accepted as the common method of infection of human beings, but as to the precise material of infection authorities differed. He holds that though it is improbable that inhalation is the principal means of lung infection, there is every likelihood of some infection taking place through the upper air passages, and that the bacilli enter the lymphatics of the mouth and infect the lymph glands of this region and the tonsils, which are often the seat of tubercle. The frequent occurrence of strumous submaxillary and cervical glands may be due to this cause.

On the other hand, the possibility, and, indeed, probability, of the lungs and lymph system being infected through the intestines is proved without doubt. Infection through the skin and mucous membranes by wounds is not a common method of infection, but sundry cases are on record which prove its possibility and indicate the undoubted danger from that source. Hospital infection, or the infection of the resident staffs of hospitals from consumptive patients, he holds, occurs only with great rarity. However, there is something behind all these factors, in the individual strength of constitution, on which mainly depends the question of infection or non-infection. The healthy individual can defy the tubercle bacillus, the same person depressed by want, impure air, or recovering from acute disease cannot, and falls a victim to the attack. But under improved conditions his constitution may rally, and after a long struggle overcome and expel the invader. Finally, all infection from consumptive patients can be avoided if the well-recognized precautionary measures are adopted and carried out thoroughly.

3. **Light Pigmentation.**—Watkins-Pitchford contends that the external pigmentation of animals is, primarily, but one of several agencies serving to protect the enclosed tissues from excess of illumination; that the pigmentation of certain internal tissues assists in controlling and directing the multiplication of those cells which habitually undergo fission, and that the "intention" of the particular color selected for the blood of the higher vertebrates is similar to that with which we make use of ruby glass in the window of a photographic darkroom. The production of pigment in response to increase of illumination is a vital and not a physical process, and is probably an inherent reaction to provide against some consequences dangerous to the organism. The cells of the body possess peculiarities which Watkins-Pitchford calls psychic. They possess the "instinct" for orderly multiplication and behave "instinctively" as their ancestors behaved. The direction of multiplication of epithelial cells was originally and for many ages dictated by the presence of pigments. The author's main proposition is that cancer is the result of the loss by the cell of its "instinct" for orderliness in multiplication, and that this "psychosis" of the cell is usually consequent on undue stimulation. The liability of an organ or region to be affected by cancer is in proportion to its liability to irradiation. Organs and regions (such as the superficial portion of the parotid and the dorsum of the trunk) which have been, in past ages, continuously liable to irradiation have acquired a partial immunity to cancer. This partial immunity is usually signalized by "latent malignancy" and chronicity of the process. Those organs which are best protected from ir-

radiation are the least liable to cancer; those which were formerly well protected and are now exposed are the most liable. The cell's environment usually requires very prolonged illumination from natural sources before the stability of its "instinct" is threatened. Cancer may be prevented by efficient protection of the body from light. Natural protections, such as hair on the face, should be encouraged. The clothing should be absolutely light-proof. The ventral surface of the thorax and abdomen should be specially protected. The tobacco pipe should be discarded at 35.

6. **Pruritus Ani.**—The local drug applications which in Tomkinson's hands appear to have been the most useful are tar and lead lotion and mercurial ointments, while of the physical agents the high-frequency current has proved of conspicuous benefit.

Lancet, London

August 21

14 Bacteriology and Pathologic Anatomy of Leprosy. J. M. H. MacLeod.
15 Malformations of the Heart (concluded). A. Keith.
16 *Early Signs of Rheumatism of the Heart. A. M. Gossage.
17 *Tumor of the Large Intestine Simulating Disease of Uterus or Uterine Appendages. V. Bonney.
18 Henoch's Purpura Associated with Angioneurotic Edema. A. Don.
19 Antityphoid Vaccination with Attenuated Live Cultures. A. Castellani.
20 Fibrolysin in Cases of Fibrous Contraction. R. H. Strong.
21 *Unusual Type of Stomatitis in an Infant. A. H. Brehaut.
22 Suppression of Urine Simulating Calculus Anuria. P. King.
23 *Appendicitis Presenting Somewhat Unusual Features. D. Ligat.
24 Transient Ataxia Following Diphtheria. H. O. Butler.
25 Pulmonary Edema. C. E. Dunning.

16. **Rheumatism of Heart.**—Gossage believes that the main factor in the production of mitral incompetence early in rheumatism is a loss of tone in the mitral sphincter. The pathologic reason for such loss of tone is the development, especially near the mitral ring and near the root of the aorta, of inflammatory nodules. In such nodules toxins would be elaborated (whether formic acid or others) and the lymph of the part would contain these toxins. Hence, the muscle fibers of the mitral sphincter would be bathed in toxins, the special action of which is to diminish tonicity, while the rest of the cardiac muscle would be much less severely poisoned since the toxins must be absorbed into the general circulation in order to reach any fibers that are not in close proximity to the nodules. Thus in any rheumatic myocarditis an early loss of tone in the sphincter of the mitral valve would be expected with the development of a regurgitant murmur. Nodules tend also to form near the root of the aorta; but the aorta has no sphincter and so no change is produced during an attack of rheumatic fever. There is also heard at the apex a murmur diastolic in time, soft and blowing in character, only temporary, which seems to have nothing to do with the development of a genuine stenosis of the valve. Death in a first attack of rheumatism is very uncommon, apart from hyperpyrexia, but a fresh attack may fatally affect the heart that is already damaged by valvular disease or pericardial adhesions, or the muscle of which has previously been injured by poisoning or inflammation. The lesions of rheumatic myocarditis are in themselves insufficient to lead to a fatal issue, and the main factor in the production of a fatal cardiac failure seems to be the action of the toxin on the muscle cells.

Affections of the myocardium in rheumatism may be divided into the inflammatory and the toxic. Inflammatory lesions cause a loss of tone in the muscle which surrounds the mitral valve, allowing of mitral regurgitation. Thus an apical systolic murmur is the sign of rheumatic myocarditis, and is, indeed, the only sign of inflammation of the heart apart from pericarditis. In the majority of cases the presence of such a systolic *bruit* is diagnostic of myocarditis, but in a small minority a regurgitant murmur may result from general dilatation without any inflammation. Poisoning of the heart muscle in rheumatism causes a general dilatation of the heart and sometimes a mitral diastolic murmur. Dilatation may or may not be associated with inflammation of the myocardium, but the diastolic murmur may be taken to imply an absence of myocarditis at the time it is heard. So far as the immediate welfare of the patient is concerned, the toxic action of rheumatism is more important than the inflammatory, since it is to the consequent failure of tonicity and contractility that death during an attack is due. Myocarditis is probably always associated with endocarditis, so that there is danger of permanent damage to a valve and the inflammation in the muscle itself may lead to such local damage that tone is never regained, leaving a permanent widening of the orifice. It is probable that the muscle may sometimes completely recover both from the poisoning and the inflammation, but in other cases the muscles never again become healthy.

17. **Tumor of Large Intestine Simulating Disease of Uterus.**—The cases reported by Bonney are the following: (1) Inflammatory tumor of cecum simulating a uterine myoma; (2) carcinoma of the transverse colon with a secondary growth in the sigmoid simulating a malignant ovarian tumor; (3) carcinoma of the sigmoid colon simulating an ovarian dermoid cyst; (4) carcinoma of the sigmoid simulating disease of the right uterine appendage; (5) carcinoma of the sigmoid with secondary growth in the anterior rectal wall simulating a malignant ovarian tumor.

21. **Unusual Case of Stomatitis.**—Brehaut's case presented every evidence of a threatening gangrenous stomatitis undergoing spontaneous cure. The particularly interesting features In the case are the following: Patient, male, was 4 months old. Primary dentition had not as yet set in; there was no history of any acute infectious disease or of mercurialism; the surroundings were not such as to call for censure. The case occurred on a farm, and there was no history of illness among the cattle. The child was bottle-fed and had no evidence of rickets or scurvy; he was anemic, but well-grown and sturdy. The acute onset and the great local reaction showed the infection, whatever its nature, to have been local and not constitutional in origin. The left cheek was very swollen and the skin was shiny; the swelling was not localized. The cheek was very hard and tense; no pitting could be obtained. It was extremely tender, and a slight touch produced a shriek. The inside of the cheek was dusky, and about half way back, on a level with the alveolar border of the lower jaw, there was a small patch of about the size of a No. 4 shot, dusky gray in color, which had the appearance of threatening gangrene. The glands in the neck on that side were enlarged and tender; any lateral movement of the head produced pain. The skin of the neck was edematous, as was also that of the scalp, especially over the occipital region. The temperature was 104.6 F. and the pulse was uncountable (probably 160). Under expectant treatment recovery ensued.

23. **Appendicitis.**—A man, aged 40, manifested symptoms diagnostic of a first attack of appendicitis. The appendix was removed. It was about 3½ inches in length, and ran vertically upward on the outer aspect of the ascending colon. It was straight. Its distal third was gangrenous. Pouting from the antimesenteric border of the gangrenous portion was an enterolith of oval shape and of the size of a bean, quite hard, and giving a metallic ring when allowed to fall on the plate. The mesoappendix was also gangrenous and its vessels were thrombosed. About a teaspoonful of offensive chocolate-colored pus escaped. There were no limiting adhesions. The appendix and its mesentery were removed and the cavity drained. The pulse and temperature did not fall after operation. There was no general peritonitis, the abdomen remaining flat and soft, and the bowels acting well to calomel on the third day. The appendix region drained well. The patient had no nausea nor did he vomit. The jaundice became more intense for the four days following operation, but was decidedly less during the next two days. The tongue remained dry and furred. There was some tenderness over the hepatic area. There were no rigors, but the patient was frequently drenched in sweat, the temperature then falling for a short time to 96 F. and the pulse remaining between 120 and 125. On the fifth day after operation the pulse was 135 and the temperature 103. The patient died on the following day, six days after operation, and the tenth day of the attack. Ligat thinks there can be little doubt that death was due to infective pylephlebitis.

Clinical Journal, London

August 11

26 Asthma. S. West.
27 Dysmenorrhea. T. G. Stevens.
28 Diseases of the Thyroid Gland. R. F. Fox.

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August 18

29 Some Elements of the Theory of Immunity. E. von Ofenheim.
30 Abscess of the Liver. A. Don.
31 *Gastric Dilatation Associated with Extreme Cyanosis. G. Templeton.

31. **Gastric Dilatation with Extreme Cyanosis.**—A woman, aged 28, of a robust constitution, three weeks previous to this illness, had lost a near relative to whom she was much devoted and whom she had nursed through an illness of several months' duration. She always enjoyed her food, had only occasionally slight indigestion, and at intervals took a mild aperient. Two days before the onset of the attack she had performed a tedious railway journey, and partook of luncheon on the train, which she did not perfectly relish. The following day she was listless and disinclined to eat or to go out. She had some general abdominal discomfort but no sickness. A few days afterward her appearance was observed to change suddenly. Her naturally fresh complexion changed to a dusky blue, the lips became prune-juice colored, and the extremities cold. Consciousness was retained perfectly and there was no rigidity or twitching. She complained of sharp abdominal pain in the region of the umbilicus, and vomited material which was said to contain nothing suggestive of blood. The cyanosis increased till the face was almost black, the lids became so puffy that her eyes were obscured, the lips were turgid, and the nose assumed a flat, negro-like appearance, but as time progressed she complained of severe pain across the upper part of the abdomen. A tympanic note could be elicited over the area of distention; the liver dulness was reduced to two inches below the right nipple from this point. Tympanitis extended to a line two inches below the umbilicus. There was no stomach splash and flank dulness could not be detected. There was rigidity and some tenderness in the upper part of the abdomen: the pulse rate was steadily increasing with a temperature of 97.8 F. The abdomen was opened by a median epigastric incision, which bled profusely, and the tense anterior wall of the stomach presented. Coursing over its surface numerous engorged vessels were observed. Gas and free fluid were entirely absent from the peritoneal sac, and after withdrawing the stomach and systematically examining it from the fundus to pylorus, no solution of continuity could be detected, nor was any localized thickening encountered suggestive of ulceration. The duodenum was next investigated, with the same result—no perforation or ulcer. The stomach was not opened, but while outside the body the extreme congestion of its walls became considerably less, and the muscular tissue in virtue of the oxygenation of the blood and the alteration in tension, appeared to improve in tone, and the stomach became rapidly reduced in size and could without difficulty be returned within the abdomen. The wound was completely closed in layers. The patient had by this time lost much of her cyanosis and the pulse had fallen to 80 a minute. Examination of stomach by percussion at the end of a week demonstrated its return to normal dimensions. The bowels moved naturally the day following operation and no melena was detected. The patient has remained in good health since—two and one-half years.

Journal of Tropical Medicine and Hygiene, London

August 2

32 Blackwater Fever. A. W. Mey.
33 Chylous Ascites. K. S. Wise.

Glasgow Medical Journal

August

34 Presentation of a Memorial of Lord Lister at the Opening of the New Glasgow Royal Infirmary. R. J. Godlee.
35 The Schools for the Deaf and Dumb. J. K. Love.
36 Extrinsic and Intrinsic Conditions Affecting School Children; Study of Some Schools and School Children in Glasgow. D. McKail.

Quarterly Journal of Medicine, London

July

37 *Syncopal Attacks, Associated with Prolonged Arrest of the Whole Heart. E. E. Laslett.
38 Irregular Action of the Heart in Mitral Stenosis: Inception of Ventricular Rhythm, etc. T. Lewis.
39 *Pathology of Paroxysmal Hemoglobinuria. C. H. K. MacAlister.
40 The Frequent Failure of the Urine to Decompose in Cases of Pulmonary Tuberculosis. W. H. White and H. I. Janmahomed.
41 Peripheral Birth Palsy. E. F. Trevelyan.
42 *Effects of Certain Drugs in Diabetes Mellitus. A. J. Hall.
43 Study of Congenital Family Cholemia. R. Hutchinson and P. N. Panton.
44 Excretion in Urine of Sugars Other than Glucose. A. E. Garrod.

37. **Syncopal Attacks.**—The patient in Laslett's case was a bright, intelligent woman, somewhat anemic. She suffered from breathlessness on exertion, but otherwise was able to go about her ordinary household duties, except when the fainting attacks were very frequent and severe. There was a systolic murmur at the apex and pulmonary area, probably hemic in nature, but there was no enlargement of the heart. The other systems presented nothing abnormal. At the time when the syncopal attacks were occurring, the pulse was slow and irregular, the rate often sinking to from 32 to 40 a minute. This infrequency was largely due to the presence of long intermissions, which varied in length from two to five seconds, as a rule, but the intermediate beats were also slow, a common frequency being 60 a minute. A tracing of the jugular pulse taken simultaneously with the radial pulse showed that the auricles as well as the ventricles participated in the stop, and that the intermissions were due to an arrest of the whole heart, not a heart block. Laslett repeatedly listened to the heart when the pulse was irregular, and was never able to hear any sounds during the intermissions. The fainting attacks occurred only when the pulse was irregular, and so far as his observations go only when the heart ceased to beat for three seconds or more.

With regard to the condition of the pulse and the frequency of the faintings, there appeared to be a cycle of events of rather variable duration. Speaking generally, the pulse remained regular (rate about 70 a minute) for the most part for a period of three or four weeks, and then intermissions began to appear which at first were of short duration and comparatively infrequent. Frequency and duration of the stops gradually increased to a maximum, at which times intermissions of four and five seconds were frequent. After two or three days there was a gradual diminution in the severity of the condition until the pulse became normal again. The period of irregularity was usually about a week. There were, however, considerable variations in the duration of both irregular and regular periods, and the latter was, moreover, often broken by short periods of slighter irregularity. Apart from these temporary disturbances of the cycle, the waxing and waning of the condition was very characteristic. The frequency of the syncopal attacks varied absolutely with the frequency and length of the intermissions.

39. **Paroxysmal Hemoglobinuria.**—MacAlister concludes that paroxysmal hemoglobinuria is the result of intravascular hemolysis. This intravascular hemolysis occurs when the blood serum becomes autolytic. There is in the blood serum a potential toxin, composed of cytase and amboceptor, which becomes active under certain conditions. The most prominent of these conditions is the application of external cold. In experiments *in vitro* it appears that direct application of cold will activate the serum. *In vivo* it is most probable that the application of cold sends impulses to the vessels by the vasomotor arc—that the hemolytic reflex travels by the same path as the vasomotor reflex. Variations in the severity of the paroxysm may depend on variation in the excitability of the nerve centers. When these are unusually excitable, a paroxysm is more readily produced than when they are quiescent. This, perhaps, accounts for the fact that while the initial paroxysms in such patients are due to a very severe chilling, the subsequent paroxysms start from a much more trivial cause.

Paroxysmal hemoglobinuria and Raynaud's disease are closely related and the boundary line between the two conditions is indefinable. The vasomotor disturbances characteristic of the latter disease are frequent in paroxysmal hemoglobinuria, and 6 per cent. of patients who suffer from Raynaud's disease pass hemoglobin in the urine. A paroxysm is attended with great degeneration and destruction of the red corpuscles. The number of leucocytes is not greatly altered, but they participate actively in the process of hemolysis. After a paroxysm, the reconstitution of the blood is very rapid, and this, coupled with other observations which need not here be recapitulated, suggests that the products of cell destruction are largely retained to form the raw material for

a new generation of erythrocytes. The ultimate source of the hemolysin is not known. There are no gross organic changes in the abdominal viscera. The liver is enlarged during a paroxysm. The spleen also, possibly from an accumulation of waste products, becomes bigger. There is possibly passive hyperemia of the kidneys, but no inflammatory change. There is no evidence, histologic or experimental, to support the view that a secretion is poured out by the endothelial cells, in response to secreto-motor stimuli.

42. **Effect of Certain Drugs in Diabetes Mellitus.**—The primary object of Hall's clinical observations was to ascertain the effects of opium, or its alkaloid codein, on various symptoms in diabetes mellitus; in what respect, if any, the crude drug differed from the alkaloid in action; and whether such effects varied with the dose given. For this purpose a series of nine cases of ordinary diabetes were placed, so far as possible, under similar conditions. Codein was given in seven cases, always in the form of a pill. As a rule, the initial dose was ¼ grain, thrice daily, which was gradually increased, at varying intervals, by ¼ grain to the dose, or by larger amounts, until as much as twelve grains was being taken daily. On the whole, the definite results obtained in these cases are disappointing. Possibly the doses given were altogether too small. This does not seem an adequate explanation, however, as in more than one case the results have appeared to become less favorable with increased doses. On the other hand, in a certain small number of cases the effects of gradually increased doses have been favorable even over several weeks. It may be said that inasmuch as codein will quickly lose its first sedative effect, it can only be of value for a short period.

Opium, either in the form of pilula opii or of pilula saponis comp., was given in six cases. In three of these it was tried before any other drug, while in three other cases it was given to patients who had previously taken codein, in order that the effects of the two alkaloids might be compared in the same individuals. The initial dose given varied from 1/5 to 1 grain, thrice daily, and was usually increased gradually, in one case up to 12 grains daily. In spite of the fact that one of the patients became worse and died while under treatment by opium, the general results obtained with it were, on the whole, rather more uniformly successful than those obtained with codein. In three cases codein had previously been tried, and comparing the results one sees that opium began to act effectively when codein in increasing doses had ceased to do so.

Annales de l'Institut Pasteur, Paris

July 25, XXIII, No. 7, pp. 513-583

45 Transmission of Leprosy. E. Marchoux and G. Bourret.
46 Similar Action of Potassium Iodid and Tuberculin. F. Sorel.
47 Chemical Composition of Bacterial Bodies and their Production on a Large Scale. (Production en grand des corps bactériens et leur composition chimique.) M. Nicolle and E. Alilaire.
48 Modifications in Leucocytes in Acquired Immunity. (Modifications des globules blancs dans l'immunité acquise.) A. T. Salimbeni.
49 Pathologic Anatomy of Inherited Syphilis of the Pancreas and Parotid Gland. G. Faroy.
50 Reduction in Excitability of Nerves in Animals Treated with Alien Serum. (Diminution de l'excitabilité des nerfs chez les animaux préparés avec le sérum d'une espèce étrangère.) Yamanouchi.

Archives des Maladies du Cœur, etc., Paris

July, II, No. 7, pp. 385-448

51 Laboratory Methods in Diagnosis of Mitral Insufficiency. Cardiocsophageal Pulsation. C. Lian.
52 Case of Congenital Cyanosis. L. Babonneix and G. Paisseau.

Archives de Médecine des Enfants, Paris

August, XII, No. 8, pp. 561-640

53 *The Blood in Infectious Diseases in Children. (Examen du sang de l'enfant dans les maladies infectieuses.) M. and W. de Biehler.
54 *Differential Blood Count in Eruptive Diseases. (Diagnostic hématologique des fièvres éruptives et des érythèmes qui les simulent.) M. Pater.
55 *Typhoid and Paratyphoid Septicemia in Infants. (Septicémie à bacille d'Eberth et à bacille paratyphique chez le nourrisson.) H. Triboulet and others.

53. **Blood Formula in Infectious Diseases.**—De Biehler examined the blood of 55 children with various infectious diseases including 17 with measles, 6 with smallpox, 11 with diphtheria and 21 with scarlet fever. The findings were about the same in all, he reports. The specific gravity of the blood directly paralleled the fever. The state of the blood beforehand determined the number of red corpuscles and the proportion of hemoglobin, but the number of leucocytes increased when some complication was impending or established. Merely a slight increase indicates a mild case without secondary infection.

54. **Differentiation of Eruptive Fevers by Blood Count.**—Pater compares the findings in 10 cases of scarlet fever with those in 7 of typhoid, pneumonia, gonorrhea or gastroenteritis, his conclusions being that a typical polynucleosis accompanies the onset of the eruption in scarlet fever. It is pronounced and remains high during the first two or three days of the eruption, even in very young children. The number of mononuclears declines, especially the proportion of lymphocytes. The eosinophiles fluctuate, but are generally increased, especially by the end of a few days of the disease. Scarlatiniform erythemas are distinguished from true scarlet fever by the leucocyte formula. It is nearly or quite normal, but the mononucleosis is pronounced. Measles and rubeola have no distinctive blood picture in comparison with erythems liable to simulate them, but they can be readily distinguished from scarlet fever by the pronounced polynucleosis of the latter.

55. **Typhoid and Paratyphoid Septicemia in Infants.**—If there is intestinal localization of the typhoid or paratyphoid in infants it takes the form of enteritis limited to the small intestine. The infection may also induce a meningoencephalitis or bronchopneumonia. Triboulet reports a case of typhoid and another of paratyphoid in infants six and nineteen months old, and cites several from the literature. The mother of the first child had typhoid while she was still nursing it. In the paratyphoid case, diarrhea and cough with fever and fatal bronchopneumonia formed the clinical picture.

Lyon Chirurgical, Lyons

August, II, No. 3, pp. 241-464

56 Intraparietal Inguinal Hernia in Women. (La hernie inguino-interstitielle chez la femme.) L. Berard and J. Stefani.
57 *Practical Treatment of Fractures of the Forearm. (Les mouvements de pronation et de supination dans les fractures de l'avant-bras.) J. Bosquette.
58 *Orbital Puncture. (La ponction des espaces sous-arachnoidiens cérébraux par la fente sphénoïdale.) L. Bériel.

57. **Practical Treatment of Fractures of the Forearm.**—Bosquette gives twenty-four illustrations of the different kinds of fracture that may be observed and urges the necessity for always bearing in mind the preservation of movements of pronation and supination in treatment. Immobilization is not necessary for fracture of the head of the radius, but extension and supination are required for fracture of the shaft of the ulna or of the olecranon. The forearm should be flexed on the arm and forced supination applied for fractures of the shaft of both bones or of the radius alone at any point. Fracture of the coronoid process requires forced flexion and supination. If there is concomitant fracture of the head of the radius, the indications are met by immobilization in flexion, permitting pronation and supination. In case of fracture of the lower end of the radius, forced pronation should be applied after reduction.

58. **Orbital Puncture.**—Bériel here gives an illustrated description of the technic for this wee sister of lumbar puncture. He has worked it out on the cadaver and has applied it in four clinical cases, and recommends it as a rational and interesting method of obtaining access to the subarachnoid space in the brain. Combined with lumbar puncture, it enables the entire mass of the cerebrospinal fluid to be medicated or substituted, and allows withdrawal of cerebrospinal fluid by lumbar puncture without danger of abrupt fluctuations in the pressure on the brain. As the procedure is dangerous, the original article should be consulted for the technic which it is impossible to give in an abstract. Bériel insists that the technic is comparatively simple after it has been learned on the cadaver.

Lyon Médical, Lyons

August 1, XLI, No. 31, pp. 177-224

59 *Chief Modes of Propagation of Epidemic Diseases. E. Grandclément.
60 *Etiology and Prophylaxis of Typhoid Fever in Regiments. H. Rondet.

August 8, No. 32, pp. 225-264

61 Case of Staphylococcus Meningitis in Scarlatina. F. Weill.

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59-60. **Prophylaxis of Infectious Diseases.**—All those recovering from a contagious disease and those who have tended the patients may harbor the germs for weeks and months, and such persons should be especially careful in regard to cleanliness. They should wash their hands frequently so that any possible contamination from excreta may be avoided. Rondet even asserts that frequent washing of the hands of nurses and cooks is the only certain means of preventing contagion. He emphasizes the fact that epidemics are not spread by the severe cases, which are always supervised and isolated, but by the walking cases and bacilli-carriers, and these nullify the effect of the final official disinfection of the dwelling. Effectual prophylaxis of typhoid fever among troops requires that every man should wash his hands after defecation or urination, especially the men employed about the food. Each man should have his individual towel, and to have the method truly effectual, he says, a corporal should be detailed to supervise this cleansing of the hands. After convalescence from typhoid fever the men should not be allowed to work in the preparation or serving of food.

Presse Médicale, Paris

August 7, XVII, No. 63, pp. 561-568

62 Antibodies in Hydatid Cysts. (Etude sur les anticorps hydatiques.) Hector y Rossello.
63 Internal Transmigration of the Fecundated Ovum. E. Schwartz and Boyer.

August 11, No. 64, pp. 569-576

64 *The General Practitioner's Examination of Intestine Functioning. (L'A B C de l'examen fonctionnel de l'intestin.) R. S. Kolbé.
65 *Treatment of Exstrophy of the Bladder. (Cure chirurgicale de l'exstrophie de la vessie.) R. Proust.

64. **Practical Examination of Intestinal Functioning.**—Kolbé declares that the general practitioner should be able to determine the functional capacity of the bowels, and urges a rational test diet with analysis of the stools and practical application of the information derived from the findings, for regulating the diet and treating bowel disturbances. He advises the Schmidt and Strasburger technic as simple, rapid and requiring no paraphernalia. In his experience the patients soon became interested and collaborated with enthusiasm when they recognized the practical importance of the test. The macroscopic findings are sufficient, no chemical or microscopic examination being required. [The Schmidt test diet was described in THE JOURNAL, July 11, 1908, page 175.] Coprology has demonstrated that the so-called nervous diarrheas are in reality more or less masked catarrhal conditions, requiring astringents, preferably an astringent diet, rather than drugs. Catarrhal conditions require gruels and milk, while excessive fermentation indicates suppression of starch, but in every case the articles of food which the individual finds difficult to digest, as determined by the tests, should be substituted by others which he is able to take care of. In the sluggishness following a secretory disturbance, ingestion of some substance which is passed along without putrefying or being digested may prove useful. Agar-agar is used for this purpose in China and Japan as a cure for constipation. These simple means of obtaining an oversight of intestinal functioning do not take more than ten minutes, and they open the doors for rational and efficient treatment, dietetic and drug.

65. **Treatment of Exstrophy of the Bladder.**—Proust does not contribute anything new, but gives nine instructive illustrations of several technics for this purpose, comparing the facility of the various operations and the outcome. He is inclined to regard Buchanan's technic as the safest and simplest, while it promises the best results.

Revue de Médecine, Paris

August, XXIX, No. 8, pp. 593-672

66 The Bronchial Lesions of the Tuberculous Lung. P. Halbron.
67 *Contraction and Dilatation of Iris Synchronous with Pulse or Respiration. (Hippus circulatoire.) M. Roch. Id. (Coexistence de l'hippus respiratoire et du pouls dit paradoxal.) M. Roch and L. Campiche.
68 The Geographical Distribution of Diabetes. (Fréquence du diabète sucré dans differentes localités du globe et son augmentation.) R. Lépine.
69 The Parathyroids. L. Cotoni.

67. **"Circulatory" and "Respiratory" Hippus.**—Roch found in 50 persons examined that the fluctuations in the blood pressure were reflected in the pupil, a high pressure being accompanied with myosis and a low pressure with mydriasis. The iris may also contract and dilate with the respiration. In a recent case, signs of aortic insufficiency were accompanied by this circulatory hippus.

Semaine Médicale, Paris

August 11, XXIX, No. 32, pp. 373-384

70 The New Sanitary Regulations for the Army in the Field. (Le nouveau règlement du service de santé en campagne de l'armée française.) F. Moty.

August 18, No. 33, pp. 385-396

71 *Is there Danger in Exploratory, Disinfecting or Palliative Interventions in Uterine Cancer? R. de Bovis.
72 *Quantitative Renal Impermeability. V. Courtellemont.

71. **Is There Peril in Exploratory, Disinfecting and Palliative Interventions on Uterine Cancer?**—De Bovis refers in particular to the experience of Zacharias (mentioned in THE JOURNAL, July 24, 1909, page 332), who had seven fatalities follow palliative scraping of inoperable uterine carcinomas. He warns against preliminary curetting of cancer before removal as liable to open a passage into the blood for virulent germs in the cancer, but admits that it is necessary to discriminate between cancer of the cervix and of the fundus in this respect, the former being the more dangerous. He sifts the literature on the subject and his own experience, his conclusions being that the wise course is to steer between the two extremes, not curetting or disinfecting enough to perforate the cancer or to impose on the patient two serious operations, but sufficient to prepare the cancer better for removal. The technic followed by von Franqué seems to be admirable; after antiseptic douches or tamponing, with alcohol and iodin, he curettes slightly the evening before the operation or directly before it. This preliminary treatment may be continued a little longer in the dubious cases, supplemented by cauterization; Lomer, Mond and Rösling have even reported cases in which cauterization caused the subsidence of infiltration which proved to be merely inflammatory and not malignant, so that the cancer, deemed inoperable before, was then readily removed. Intrauterine curetting is contraindicated by a pronounced and persisting febrile condition, extreme friability of the uterine tissue, pyosalpinx, or great debility, even a palliative operation being unwise in these cases unless to avert danger of hemorrhage. In Zacharias' cases, rupture of a pyosalpinx was responsible for the fatality in one and peritonitis from perforation of the cancer in another.

72. **Importance of Quantitative Renal Impermeability.**—Courtellement discusses the condition in which the kidneys are unable to eliminate above a certain proportion of the amount of fluid ingested; all over this amount is retained, inducing oppression and dyspnea. This quantitative retention is generally associated with the qualitative variety, but it is the former that determines the prognosis. The patient should be tested by allowing increasing amounts of fluids to determine the tolerance, comparing the amount ingested with the output and the development of dyspnea with a certain amount of retention. As a rule, it is wise for the patient not to ingest more than 100 or 300 gm. of fluids in drinks, soups, etc., in excess of what he eliminates in the form of urine. This principle should be applied when there is merely oppression or dyspnea, not waiting for the development of anasarca or ascites. He has found it necessary to reduce the total amount of fluids ingested to 800 or even to 700 gm. in certain cases, and would not hesitate to go even lower at need. After the storm is past he permits more fluids, but usually finds that trouble may be anticipated when the excess of intake over the output in urine reaches 400 or 500 gm. This restriction of fluids he always accompanies by restriction of salt, although generally permitting meats. No egg white is allowed. The patient is ordered to stay in bed in the acute phases with relative repose during the intervals of calm, and, if necessary, purging and local or general venesection. Reduction of the amount of fluid ingested is the main thing, however, and frequently proves alone all that is necessary. According to the classic conception of uremia—qualitative renal impermeability—the patient is urged to drink freely to aid in elimination of toxins, regardless of the increasing dyspnea as the amount of urine grows less in proportion to the fluids ingested. With the conception of quantitative impermeability, on the other

hand, the treatment should be just the reverse, as otherwise the patients are liable to succumb in pronounced uremia or from heart complications.

Archiv für klinische Chirurgie, Berlin

XC, No. 1, pp. 1-261. Last indexed Sept. 4, p. 822

73 *Surgical Treatment of Non-malignant Stomach Lesions and Ultimate Outcome. (Chirurgische Behandlung gutartiger Magenaffectionen, insbesondere des Magengeschwürs und seiner Folgezustände, mit bes. Berücksichtigung der Spätresultate.) M. Busch.

74 Treatment of Subcutaneous Rupture of the Liver and Later Expulsion of Sequester of Liver Tissue. (Subcutane Leberruptur mit späterer Ausstossung grösserer Lebersequester und deren Behandlung.) P. Biernath.

75 *Suction Apparatus as Aid in Surgery. (Verwendung der Ansaugung in der operativen Chirurgie.) F. Krause.

76 *Intravenous Adrenalin-Saline Infusion in Peritonitis. H. Heineke.

77 Fulguration and Radium Emanations in Cancer. (Gebrauch der Fulguration und der Kreuznacher Radiolpräparate bei der Behandlung der Krebse.) V. Czerny.

78 Partial Necrosis of Colon after Resection of the Stomach. C. Goebel.

79 Treatment of Surgical Lesions in Asia. (Behandlung chirurgischer Krankheiten in Asien.) P. Bockenheimer.

80 *Belt Constriction for Exarticulation of Hip and Part of Pelvis. (Ueber die Exarticulatio interileoabdominalis in Blutleere nach Momburg.) E. Pagenstecher.

81 Pathogenesis of Appendicitis. Helle.

82 Immunizing Action of Nucleinic Acid. (Immunisirende Wirkung der Nucleinsäure.) G. Pariavecchio.

83 Callus Formation after Injury of Knee, Simulating Fracture. (Eine typische periostale Callusbildung am Condylus internus femoris nach Kniedistorsionen.) G. Preiser.

73. **Surgical Treatment of Non-Malignant Gastric Disease.**—Busch reviews the ultimate outcome in 124 cases of benign stomach affections in which Körte has operated since 1900. The intervention was on account of gastric ulcer and its consequences in 87; duodenal ulcer in 7; stenosis of the pylorus from ptosis or other causes in 16, and from adhesions left by pericholecystitis in 7; caustic injury in 5, and acute dilatation of the stomach in 2. The age of the patients ranged from 14 to 68. The general conclusions are: (1) Nervous stomach affections should never be operated on except that an exploratory laparotomy may be necessary to exclude positively the presence of an ulcer; (2) stenosis from an ulcer and ulcers persisting in spite of systematic and prolonged internal measures indicate preferably retrocolic posterior gastroenterostomy with a circular suture in two tiers, as promising excellent results. If the stomach is extremely flabby and stretched an enteroanastomosis according to Braun's technic may be required as a prophylactic measure. Especially with open ulcer, after-treatment with means to reduce acidity is particularly necessary, possibly accompanied with lavage, and always careful selection of the articles of diet. Resection should be considered when there is the least suspicion of the malignant nature of the tumor, also for severe callous tumors, especially if they intrude on neighboring organs (liver, pancreas). The resection should always be circular, according to Riedel's technic. The conditions in individual cases must decide whether the more radical but more serious resection technic should be preferred to gastroenterostomy.

75. **Suction Apparatus as Aid in Operating on Brain Tumors.**—Krause has had unusual experience in the removal of brain tumors and has always felt the lack of some means of getting hold of the tumor to draw it out without the need of prying it up from behind. He has recently been using a suction apparatus for the purpose and has found it effective. He used at first something like a Bier cupping glass, with rubber bulb, but has since perfected the technic by connecting the glass cup with the hydrant to form an air pump worked by the vacuum from the running water. Eight large illustrations show the application of the suction apparatus and the advantages from its use. A soft friable tumor in the depths is revealed by the turning back of the bone flap, and the rounded edges of the long narrow glass cup are placed on the most accessible part of the tumor and suction applied. At once the tumor is sucked up into the cup and is held rigidly by the negative pressure, so that the tumor and glass form a solid whole which can be moved and manipulated as a single object, without the necessity for lifting the tumor from behind. When the tumor has been drawn out, its base can be severed like a pedicle. The brain is pushed back with small wads of cotton so that all danger of injury from instruments is avoided. He uses glass cylinders for the cups, from 10 to 55 mm. in diameter, the outer end tapering abruptly to a point, bent downward, and connected by a boiled rubber tube, about half a yard long, with another tube five or six yards long which runs along the floor to the hydrant. His illustrations show the apparatus as used for tumors in the frontal and cerebellar region. In order to keep control of the suction, there is a small round hole in the side of the cylinder, just where the index finger would naturally be applied in holding the cup; by raising the finger air streams in and suction stops at once. One illustration shows a tumor behind the cerebellum, an *Acusticustumor*, which he drew out with a small suction cylinder until the tumor was nearly as long and narrow as the cylinder. He was able to draw out and enucleate by this means a tumor in the hypophysis which was nearly as large as an egg, and to which he gained access through the forehead. He doubts if a tumor of this size could be removed through the small hole at the base of the sella turcica according to Schloffer's technic. He turned back a flap reaching from the longitudinal sinus to the middle of the temporal muscle, exposing to view the entire anterior cranial fossa and part of both temporal lobes and of the frontal lobe on the other side. The patient recovered from the operation and the acromegaly is subsiding, while the diabetes mellitus vanished almost at once. In conclusion, he suggests that the suction apparatus may possibly prove useful in surgery of the lungs and for removal of intrathoracal tumors, retrosternal struma, and also in the small pelvis. The suction cup allows as firm hold of the growth to be removed as the corkscrew which aids so materially in the removal of uterine myomas.

76. **Intravenous Adrenalin-Saline Infusion in Peritonitis.**—Heineke reports extensive experimental and clinical research, which demonstrates, he thinks, that the main effect of the infusion is due to the salt solution, and that this is more prominent in the cases in which the patient has just lost large amounts of fluid. The effect of the adrenalin is so transient that it can be of little use in peritonitis; its chief field is in collapse, transient in its nature, as in general anesthesia and spinal anesthesia; in shock after severe operations and injuries; in hemorrhage; and possibly also in intoxications and in threatening conditions during infectious diseases.

80. **Exarticulation of Hip with Half of Pelvis.**—Pagenstecher states that only 7 of the 24 patients on record requiring interileoabdominal exarticulation survived more than a short time after this severe and dangerous operation. Now, however, the application of the Momburg belt constriction has lessened the danger of hemorrhage, and he reports a case in which this technic permitted the operation to proceed as free from bleeding and with as little danger as an ordinary amputation of the thigh. Bier reported a similar case last year, the application of the constricting belt having aided in the success of the intervention. Pagenstecher's patient was a woman of 50 with a sarcoma in the iliac fossa and inside of the acetabulum. The disturbances from the operation were so comparatively mild that on the third day the patient asked to be allowed to get up, but there has been persisting paralysis of bladder and rectum ever since. He is unable to determine whether this paralysis is to be ascribed to the belting constriction or not. The patient otherwise is in good general health at present, four months since the operation. It is possible that the constriction injured the nutrient vessels of the conoid distal end of the spinal cord, but he thinks that this isolated mishap should not be allowed to discredit the Momburg technic which offers such advantages for this operation. He has applied it since in another case, for resection of the sacroiliac symphysis; in neither instance was there any disturbance from reactive hyperemia after removal of the constriction.

Beiträge zur Klinik der Tuberkulose, Würzburg

XIII, No. 2, pp. 145-242

84 Behavior of Tubercle Bacilli in Different Organs after Intravenous Injection. W. Neumann and H. Wittgenstein.

85 *Isolation of the Tuberculous. (Welche Massnahmen sind zur Isolierung tuberkulöser Personen zu empfehlen?) A. Bielefeldt.

86 *Tuberculosis in Infants. (Säuglingstuberkulose.) O. Aronade.

87 *Frequency and Importance of Palpable Lymph Glands in the Supraclavicular Triangle with Pulmonary Tuberculosis. (Zur Frage der Häufigkeit und Bedeutung palpabler Lymphdrüsen in den supraklavikulären Halsdreiecken bei Lungentuberkulose.) A. Bauer.

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85. **Preferable Measures for Isolation of the Incurable Tuberculous.**—Bielefeldt relates the experiences with the "homes" erected by seven different life-insurance companies in Germany for the incurable tuberculous. Some of these homes were equipped with every comfort, amid beautiful scenery, and everything was done to make the inmates contented, even to a little garden for each one. But it has been found that very few tuberculous individuals are willing to go to these homes and most leave again in a short time. He suggests that the desired purpose can be accomplished by withdrawal of the pension, partially or entirely, unless the insured are willing to submit to the sanitary regulations or to isolation. Compulsion will seldom be necessary, as the families will be more inclined to persuade the tuberculous individual to obey directions or to go to the asylum when they know that the pension depends on it. The pensioner will also be more inclined to comply with the sanitary directions if he knows that insubordination will be followed by removal to the asylum or loss of his pension.

86. **Tuberculosis in Infants.**—Aronade reports six typical cases to throw light on the possibilities of infection, influence of food on the course of tuberculosis, and the efficacy of tuberculin treatment. Among the practical points emphasized is the necessity for not allowing any nurse or attendant who has anything to do with tuberculous adults to care for infants. In one of his cases the night nurse attended sometimes to the service both in his infant ward and in a ward containing a few tuberculous adults. In another case there is a possibility that infection may have occurred as a healthy child nursed a woman who sometimes gave the breast to a tuberculous infant. The breast milk should be drawn for the tuberculous child in such cases. The cutaneous tuberculin test repeated from time to time is a valuable index to point out when an infant has acquired tuberculous infection. He has never discovered anything to suggest that breast-fed infants are more resistant than others to tuberculous infection—all being practically defenseless. His experiences with tuberculin were discouraging. In pulmonary tuberculosis the local reaction induced by the tuberculin might lead to a propagation of the tuberculous process. In one case the child died of asphyxia, possibly from acute swelling of the glands around the trachea, the result of the injections of tuberculin. In another case the catastrophe observed seemed to be the direct result of the injection of tuberculin.

87. **Palpable Glands in the Supraclavicular Triangle a Sign of Tuberculosis.**—Bauer calls attention to enlarged glands in the triangle in the neck formed by the clavicle, the trapezius and sternocleidomastoid muscles as a certain sign of disturbance in the deeper glands, and thus an index of pulmonary lesions. If his assumption that enlargement of the glands here is connected with pulmonary tuberculosis, this sign may aid in early diagnosis. He obtained positive findings in 30 out of 32 suspects and in 177 out of 225 certain tuberculous inmates of the Friedrichsheim sanatorium.

Berliner klinische Wochenschrift

August 9, XLVI, No. 32, pp. 1477-1516

88 Gout. (Zur Klärung der Gichtfrage.) Falkenstein.
89 *Polyserositis. v. Marenholtz.
90 *Congenital Torticollis. (Zur Aetiologie des angeborenen Schiefhalses.) M. Böhm.
91 Sources of Error in Determining the Opsonic Index. (Fehlerquellen bei der Bestimmung des opsonischen Index.) A. Strubell and W. Felber.
92 Report of the German Relief Expedition to the Italian Earthquake Region. (Mit der deutschen Hilfsexpedition im süditalienischen Erdbebengebiete.) H. Eckstein.

August 16, No. 33, pp. 1517-1556

93 *Differential Diagnosis of Tertiary Syphilis, Lupus, and Cancer. (Lupus oder tertiäre Lues? Sarkom oder primäre Lues?) A. Neisser.
94 Relations between Resisting Power of Transplanted Mouse Tumor and its Histologic Structure. (Beziehungen zwischen Geschwulstresistenz und histologischem Bau transplantierter Mäusetumoren.) J. A. Murray.
95 Cobra Venom Hemolytic Reaction. (Weitere Mitteilungen über die Hemmungsreaktion menschlicher Sera gegenüber Kobragift.) E. L. Brückner and H. Much.
96 Manifold Binding Properties of the Complement of Serum in Leprosy, etc. (Vielfache Bindungseigenschaften des Komplementes einiger Sera Leprakranker und ihre Bedeutung.) C. Frugoni and S. Pisani.
97 *Specific Substances in Diagnosis and Treatment of Tuberculosis. J. Mitulescu. Commenced in No. 32.
98 Ocular Disturbances in relation to Obstetrics. (Augenerkrankungen in ihren Beziehungen zur Geburtshilfe.) E. Runge.

89. **Polyserositis.**—In the case described, a laparotomy had been done on the assumption of tuberculous peritonitis, but no signs of tuberculosis had been discovered. The patient was a robust young man not addicted to liquor and with no family or personal history of tuberculosis or syphilis. A little dyspnea on exercise was noticed for a year before the polyserositis developed, and at autopsy three years later the liver was found in atrophic cirrhosis and the heart entirely adherent to the pericardium, which contained patches of calcification, although there had been nothing to suggest a heart affection during life, except the slight dyspnea at first. Both tuberculin and Wassermann tests were negative.

90. **Etiology of Congenital Torticollis.**—Böhm states that Roentgen examination has confirmed the findings in certain museum specimens demonstrating that congenital torticollis may in some cases be due to deformity in the skull and atlas instead of to a muscular defect.

93. **Cancer, Lupus or Syphilis?**—Neisser reports a case of supposed lupus in which the syphilitic nature of the affection was not discovered for two years. He warns that this may be a more common occurrence than is generally realized, and urges prompt and energetic mercurial and iodid treatment in every case of supposed lupus in which there can be the slightest suspicion of a possible syphilis. In the above case the woman's daughter was healthy until she too contracted the supposed lupus, and in the course of the two years great disfigurement and blindness had resulted from the destructive process. He states that a nasal affection developing in a woman as late as the age of 41 is much more likely to be syphilis than lupus, and the early perforation of the septum in this case should have suggested the true nature of the supposed lupus. A positive history of syphilis does not exclude a non-syphilitic affection, and a negative history—especially in women—does not exclude syphilis. The general practitioner should never hesitate to apply the subcutaneous tuberculin test in all cases of a superficial affection suspicious of tuberculosis; the cutaneous and ocular technics do not answer the purpose in these cases, as they merely indicate the presence of some tuberculous lesion somewhere in the body, but do not give information in regard to the tuberculous character of a known cutaneous affection. In a more recent case a red warty patch, three or four inches in diameter, had been observed for two years on a young man and the diagnosis of tuberculosis verrucosa seemed unmistakable, but there was no reaction to injection of tuberculin up to 5 mg., while the Wassermann test proved positive, and recovery promptly followed exhibition of mercury and iodid. In a third case a married woman had colic, a greenish vaginal discharge and hemorrhage, coming on rather suddenly, and examination ten days later, with microscopic findings suggesting a round-celled sarcoma, led to prompt hysterectomy on the assumption of cancer. A few months later extensive papulous syphilids developed, and it was learned that the husband had been infected with syphilis seventeen years before. The infection of the wife was evidently recent, possibly, Neisser suggests, from contamination from a speculum. The Wassermann test before the operation would have suggested the necessity for vigorous treatment with both mercury and iodid combined, trusting to neither entirely. If in the course of two weeks of such treatment, refraining from local measures, there is no evidence of a tendency toward healing, then the diagnosis of syphilis can be abandoned. It is not always easy to carry out this scheme in practice, as patients may be unable to tolerate it. It is important to bear in mind that the affection in question may be syphilis in the first, second or third stage, and that every year adds to the number of cases of primary sores in unusual localities. In the above case the woman bore the hysterectomy without injury, but in another case of which he knows the infection had evidently been acquired during local treatment of "tonsil stones," and the fresh syphilitic lesion in the tonsil was assumed to be a sarcoma. The possibility of syphilis was suggested, but only the tertiary form, and potassium iodid was administered, but without effect. This was supposed to exclude syphilis, and consequently excision of the lesion was determined, but the findings on tracheotomy excluded sarcoma and the operation was not completed. The patient suc-

cumbed, however, to "aspiration pneumonia" from the tracheotomy. Accumulations of round cells must not be accepted as a sure sign of cancer; nothing but typical carcinoma findings justify this.

97. **Specific Substances in Diagnosis and Treatment of Tuberculosis.**—Mitulescu here gives a summary of the various technics for application of tuberculin in diagnosis and treatment, comparing his own results with those of others and concluding by emphasizing the importance of tuberculin treatment in the early stages of tuberculosis. He calls on the general practitioners as the ones to apply it on a large scale. This is the only way to prevent chronic tuberculosis from becoming "open," and to have the prophylaxis of the disease truly effectual. Nothing can be really accomplished, in prophylaxis, he adds in conclusion, until general practitioners become convinced of the importance of specific treatment of tuberculosis and learn to apply it in the earliest stages of the disease.

Deutsche medizinische Wochenschrift, Berlin

August 12, XXXV, No. 32, pp. 1373-1416

99 *Summer Maximum of Infant Mortality. (Ueber den Sommergipfel der Säuglingssterblichkeit.) H. Finkelstein.
100 *Fatalities from Ileus and its Treatment. (Zur Frage des Ileustodes und der Ileustherapie.) W. Braun and H. Boruttau.
101 Mechanism Regulating Secretion of Intestinal Juice. (Zur Analyse des Erregungs- und Hemmungsmechanismus der Darmsaftsekretion.) B. Molnar.
102 Study of Wassermann Reaction. H. Schlimpert.
103 Satin Wood Dermatitis, an Anaphylaxis of the Skin. (Satinholzdermatitis, eine Anaphylaxie der Haut.) Wechselmann.
104 *Physical Measures in Treatment of Pulmonary Edema. (Zur physikalischen Therapie des Lungenödems.) T. Kulenkamp.
105 *Differentiation of Pernicious from Severe Secondary Anemia by Findings in Ocular Fundus. (Verwertung von Augenhintergrundsuntersuchungen zur Differentialdiagnose zwischen perniciösen Anämien und schweren sekundären Anämien.) F. Hesse.

99. **Causes of Increased Infantile Mortality in the Summer.**—Finkelstein gives curves showing the infant mortality and the temperature day by day, the peaks in each paralleling each other to a remarkable extent. An extremely hot day is almost inevitably followed by a number of extremely sick infants being brought to the hospital before the close of the twenty-four hours. This is too early for toxic or bacterial influences to make themselves felt so fatally, and he agrees with those who regard this immediate hot-weather infant mortality as due to actual heat stroke; the death should be reported as heat stroke. But these acute cases of heat stroke do not explain the steady increase as the hot weather continues. The subacute indigestion which begins in the hottest weather generally terminates fatally after the extreme heat has subsided, so that the highest mortality is found when the weather has returned to moderate. Extreme heat may lead to severe gastrointestinal disturbances in adults on a hearty diet, and the same must be assumed in regard to infants. As their tolerance for cow's milk under all circumstances is lower than for breast milk, the bottle-fed children will sicken earlier and more severely than breast-fed children. It is also possible that the breast-fed child is more resistant not only to alimentary disturbances, but to the effect of the heat. An important practical conclusion from his views is the necessity for treatment as for heat stroke in the hot-weather ailments of infants. In his experience he has witnessed symptoms suggesting heat stroke in infants during sweating procedures, even in winter. The effect of the high temperature is felt most severely when it is protracted and when the children are kept too warmly clothed and covered up. The latter factor may explain the greater prevalence of these disturbances in the lower classes.

100. **Treatment of Ileus.**—Braun has been experimenting with animals to determine the most decisive factors in the fatalities from ileus. The results show that autointoxication and reflex action are comparatively unimportant factors. The disturbances are the result of interference with the functioning of the intestines and with the circulation in the abdominal cavity. The heart is not primarily involved with ileus in the small intestine unless the clinical picture is complicated by infection. Otherwise in animals as in man the normal heart continues to work continually and powerfully to the very last. At first the intestine above the occlusion increases in size, fills up with intestinal juice in nine hours with an amount corresponding to the total quantity of blood in the animal. All the intestinal vessels are gorged with blood and the intestine above the obstruction is in extreme peristaltic excitement, accompanied by exaggerated secretion of pancreatic and intestinal juice and bile. These views emphasize the necessity in ileus for measures to tranquilize the intestine and regulate the circulation. Opium may accomplish the former and saline infusion the latter, possibly supplemented by a suprarenal preparation.

104. **Physical Measures in Edema of the Lungs.**—Kulenkamp reports a case in which edema of the lungs seemed to be controlled by measures as for artificial respiration. The effect was surprising and the patient was relieved at once. The dyspnea seemed to be most pronounced during expiration, and compression of the thorax at each expiration was kept up for an hour and a half until the patient was entirely at ease. When the disturbances come on more slowly, great benefit may be derived from application of a thermophore to the heart, inducing general sweating. This not only insures better circulation for the heart, but also improves conditions throughout the entire vascular system.

105. **Examination of the Fundus of the Eye for Differentiation of Anemia.**—Hesse states that hemorrhages in the fundus of the eye are an important symptom of pernicious anemia. He found hemorrhage in the retina in 47 out of 50 cases of pernicious anemia, but nothing of the kind was to be detected in 51 cases of severe secondary anemia from chlorosis, hemorrhages or cirrhosis of the liver, nor in 64 cases of cancer, including 29 gastric carcinomas. This absence of hemorrhages in the retina in the cancer cases suggests the importance of this sign for differentiation of anemia of different origins. Positive findings speak for the pernicious form, while negative sustain the assumption of some hidden malignant tumor, presumably in the intestines.

Medizinische Klinik, Berlin

August 1, V, No. 31, pp. 1145-1180

106 Operations on Nasal Septum in Children. (Operationen an der Nasenscheidewand in jugendlichem Alter.) L. Rethi.
107 *Operative Treatment of Congenital Dribbling of Urine. (Zur operativen Heilung des angeborenen Harnträufelns.) Hackenbruch.
108 *Organ Disturbances in Tapeworm Hosts. (Organstörungen bei Tänienträgern.) R. Latzel and A. Stanlek.
109 Balneotherapy for Children. M. Hirsch.
110 *The Creeping Cure in Treatment of Scoliosis. (Kriechkur in der Skoliosenbehandlung.) G. Müller.
111 Double Stain for Distinguishing Live from Dead Lepra Bacilli. (Unterscheidung lebender und toter Leprabazillen durch Doppelfärbung.) P. G. Unna.

107. **Operative Treatment of Congenital Dribbling of Urine.**—Hackenbruch obtained very satisfactory results in a case of interior fissure of the bladder with epispadias of the urethra in a girl of 12 who had suffered from constant dribbling of urine since birth. He could not find any account of a successful technic in the literature, and devised one for himself, drawing up the neck of the bladder to make a narrow passage and then twisting the canal thus formed, from below (Gersuny), thus inducing compression of the urethra and of the newly formed neck of the bladder. He gives six illustrations of the technic followed, the neck being drawn up with three silk sutures tied separately, working through a suprapubic incision. After an interval intended to be six months, but for various reasons lasting nearly two years, the second part of the technic was applied, twisting the urethra like a corkscrew and fastening it in this position with a silk suture to the labium minus. Normal conditions were restored, even to the normal sensation of desire to urinate and ability to restrain it, and these normal conditions have persisted for four years to date.

108. **Organ Disturbances in Tapeworm Hosts.**—Latzel tabulates the findings in 50 cases. They show that the tenia is liable to have an injurious influence on various organs, both by its toxic products and by reflex action, the resulting disturbances simulating serious primary disease.

110. **Creeping in Treatment of Scoliosis.**—Müller endorses the efficacy of Klapp's creeping method in the treatment of scoliosis, but urges that it should be supplemented by the other usual measures.

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Münchener medizinische Wochenschrift

August 10, LVI, No. 32, pp. 1625-1672

112 *Neuroses of Internal Organs. (Neurosen innerer Organe und Erkrankungen der Organnerven.) A. Schmidt.

113 *Local Treatment of Slight Inflammatory Processes in Parturients. (Zur Wertschätzung einer örtlichen Behandlung der leichteren Wundentzündungen des Wochenbettes.) O. v. Herff.

114 *Treatment of Hematocele after Extrauterine Pregnancy. (Zur Behandlung der Haematozele nach ektopischer Schwangerschaft.) P. Esch.

115 *Suture of the Heart. (Zur Herznaht.) H. Flörcken.

116 *Gastric Ulcer in Bavaria. (Verbreitung des Ulcus ventriculi in München und im bayerischen Gebirge.) Crämer. Id. (Häufigkeit des Ulcus rotundum ventriculi in München.) Oberndorfer.

117 *Anemia in Infants and its Prevention. (Anämie des Säuglingsalters und ihre Verhütung.) J. Katzenstein.

118 Treatment of Circumscribed Skin Lesions with Carbon Dioxid Snow. (Behandlung von umschriebenen Hauterkrankungen mit Kohlensäureschnee.) L. Zweig.

119 Hyperkeratosis under the Nails as Roentgen Injury. (Hyperkeratosis subungualis Unna als Röntgenwirkung.) Wehrsig.

120 Roentgen Localization of Foreign Bodies. (Einfache Methode zur Bestimmung des Tiefensitzes von Fremdkörpern mittels Röntgenstrahlen.) C. Müller.

121 Formula for Computing Actual Size of Organs from Roentgen Shadows. (Bestimmung der wahren Grösse von Organen, etc., aus der Grösse des Schattens im Röntgenbild.) R. Geigel.

122 *Suckling and Cancer. (Mutterbrust und Karzinom.) A. Groth.

112. **Neuroses of Internal Organs.**—Schmidt thinks that the proper classification of these affections gives a clew for treatment, and suggests the following three groups: (1) Central (psychogenic) organ neuroses (all partial manifestations of psychoses), or psychoneuroses or, as organ neuroses, the apparently isolated manifestations of the same; (2) peripheral organ neuroses and affections of the nerves of the organs. These include: (a) disturbances originating in the nerves controlling the organ, the vagus and sympathetic, such as tabetic crises, the Adams-Stokes syndrome for which the vagus is responsible, and certain cases of paroxysmal tachycardia; (b) disturbances due to the nervous elements of the organs themselves, such as the Adams-Stokes syndrome due to some affection of the bundle of His, asthma and pylorus spasm; (3) toxoneuroses of the organs, such as lead colic, goiter heart, and the gastrointestinal disturbances of Addison's disease. We know that the toxoneuroses are frequently accompanied by symptoms of insufficiency of the organs involved. Examples of this are the weakness of the heart with goiter heart, myoma, and in the menopause, and the connection of nicotin with arteriosclerosis. It is evident that the parenchyma is injured as well as the nerves. This is also manifest in bronchial asthma (nervous catarrh). On the other hand, in Group 2a, the disturbance is mainly functional. Changes in the heart beat from an affection of the vagus, in case the heart muscle is sound, are not so readily followed by weakness of the heart. The central organ neuroses, Group 1, leave the organ absolutely intact, the whole suddenly vanishing without leaving a trace. The experienced practitioner intuitively draws the line for which research is now striving to supply exact data for differentiation and treatment. Digitalis may help in heart disturbances due to an affection of the vagus but it fails in those due to the bundle of His and with goiter heart. The central heart neuroses are not benefited by digitalis or carbonated baths any more than is psychogenic dyspepsia benefited with diet and lavage. They are helped only with psychotherapy and general tonic measures and sedatives. The peripheral organ affections for which the vagus is responsible respond effectually to atropin. Unfortunately, the means of combating the autotoxic neuroses are still far from satisfactory, but the growing knowledge of the action of the special organ extracts, such as suprarenal extract, justifies the hope that much good may yet be accomplished in this line.

113. **Local Treatment of Slight Inflammatory Processes in Parturients.**—The tabulated details of v. Herff's obstetric cases during the last twelve years demonstrates, he thinks, the superiority of his method of managing slight local inflammation during confinement. His aim is to stimulate the vagina and uterus to self-drainage. This he accomplishes with hot vaginal douches, ergot internally, and if necessary, a flexible metal drain introduced into the uterus.

114. **Treatment of Extrauterine Pregnancy.**—Esch reports a case in which the hematocele putrefied; vaginal incision with drainage had proved inadequate. In another case menacing after-hemorrhage occurred. He now operates at once to avert such complications and in nineteen cases of extrauterine pregnancy has had no mortality except with one moribund patient.

115. **Suture of the Heart.**—Flörcken reports another successful case and discusses the chances for surgical intervention in injury of the heart, the diagnosis, indications, technic and after-treatment with a historical review of the subject. The pericardium became adherent in some of the patients later, and on account of this danger of adherence he commends the advantages of definite resection of the rib to permit immobilization of the anterior wall of the chest.

116. **Frequency of Gastric Ulcer in Bavaria.**—Crämer has been collecting information in regard to the prevalence of gastric ulcer in Munich and in the country districts and states that an ulcer or an ulcer scar is found in from 5 to 8 per cent. of all the cadavers examined at Munich, while in 21 rural districts the proportion is very low in 9 and unusually high in 9 others. One practical conclusion of his investigations is that a vegetable diet does not by any means insure immunity against gastric ulcer.

117. **Prevention of Anemia in Infants.**—Katzenstein refers to the anemia without appreciable cause, and experience has convinced him that these anemic infants are suffering from lack of iron. This form of anemia is more common in families in which the infants are allowed nothing but milk while it is rare when the children early eat at the family table. He does not give iron directly but during or after the third month allows once a day a little meat broth with one-half and later the whole yolk of an egg. During the fourth and fifth months gruel is given once or twice a day, made of zwieback with butter, milk, salt and sugar to which the egg yolk is added. By the sixth or ninth month he gives spinach; by the tenth and eleventh month a little meat. When the child is a year old he reduces the milk to a pint or a pint and one-half a day and accustoms the child to a mixed diet. By this means, the anemia is prevented and always cured when developed. Infants seem to feel the need of iron mostly in the fourth month, and by giving them in this way a little food that contains iron it is possible to keep the hemoglobin at 100 per cent. The children take this diet without disturbance. Yolk of egg and spinach contain 22 and 35 mg. iron in 100 gm. of dry substance, while cow's milk contains only 2.3 mg. He thinks it is not a mere coincidence that none of the children given iron in this way has ever developed rachitis. Milk does not contain enough iron for the proper development of the infant, and sooner or later the child will suffer, especially about the fourth or sixth month, at which time a little mixed food containing iron is given whether the child is getting breast milk or is bottle-fed.

122. **Cancer and Suckling.**—Groth presents some tabulated statistics which demonstrate that women who nurse their infants seem to be protected in much larger measure against cancer of the breast and genital organs than other women. The proportion of cancers grows less with the longer duration of the suckling period.

Wiener klinische Wochenschrift, Vienna

August 12, XXII, No. 32, pp. 1119-1154

123 *Clinical Symptoms of Hypertrophy of the Left Ventricle. (Ueber mehrere klinische Symptome der Hypertrophie des linken Ventrikels.) L. Kurt.

124 *Connection of Scleroderma with Tuberculosis. S. Reines.

125 Improved Technic for the Wassermann Reaction. (Warum ist die Rechtsche Modifikation der Wassermannschen Luesreaktion dieser und der Sternschen Modifikation vorzuziehen?) König.

126 Incarceration of Appendix in Hernial Sac. (Kasuistischer Beitrag zur Kenntnis der Appendizitis und Appendixeinklemmung im Bruchsack.) A. v. Winiwarter.

123. **Clinical Symptoms of Hypertrophy of the Left Ventricle.**—Kurt calls attention to a symptom which he has been studying for five years, the increased loudness of the first sound over the left ventricle just above the apex. In normal conditions the second sound is weaker here than over the adjoining part of the right ventricle. The louder first sound over

the middle part of the left segment of the heart occurs, (1) in the so-called exercise hypertrophy of the heart; (2) in "pregnancy heart;" (3) in senile hypertrophy; (4) in the hypertrophy of the obese; (5) in certain valvular defects, especially with well compensated mitral insufficiency; (6) as an early symptom in arteriosclerosis; (7) in the hypertrophy accompanying nephritis. The frequent weakening of the first sound with the "lifting apex beat" is partially the result of conduction. The lifting apex beat prevents the shaking of the thorax during systole, as it is lifted with the apex. An artificial murmur is produced in the stethoscope with this lifting apex beat, which renders the perception of the first sound more difficult. The louder second sound with hypertrophy is probably due in part to the enlargement of the aorta. Bamberger was the first to emphasize the importance of the lifting apex beat with pronounced hypertrophy of the left ventricle, and also the importance of the louder second aortic sound for the diagnosis of the condition.

124. **Relations Between Scleroderma and Tuberculosis.**—Reines reports thirteen cases which confirm the connection between scleroderma and tuberculous infection. Energetic tuberculin treatment seems to have been responsible for the stationary phase into which the scleroderma entered in two cases. It is possible, he adds, that the sympathetic nervous system might be influenced by Roentgen-ray exposures, as Schwarz has found in diabetes and exophthalmic goiter. The tuberculin tests were positive in all his cases of generalized scleroderma, and the tendency of the tubercle bacillus to induce sclerotic processes is another argument in favor of this assumption. Inoculation of animals also gave positive results.

Zentralblatt für Gynäkologie, Leipsic

August 14, XXXIII, No. 33, pp. 1137-1176

127 Extraperitoneal Cesarean Section. (Der extraperitoneal Kaiserschnitt.) K. Reifferscheid. (Extraperitonealer Kaiserschnitt nach Latzko-Döderlein.) Jahrelss. (Ein extraperitonealer Kaiserschnitt, die Frucht in positio occipitalis sacralis.) Nacke. (Fall von extraperitonealem Kaiserschnitt nach Sellheim.) G. Heinricius. (Zwei extraperitoneale Kaiserschnitt nach Latzko.) J. Eversmann. M. Frank. (Ueber den extraperitonealen Kaiserschnitt.) W. Rubeska. (Peritonealer oder extraperitonealer Kaiserschnitt.) K. E. Laubenburg.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 12, XXX, No. 96, pp. 1009-1016

128 *Treatment of Chlorosis. (Terapia della clorosi.) R. Ferrario.

128. **Treatment of Chlorosis.**—Ferrario relates his experience with twelve cases of chlorosis in which he supplemented iron tonics with hot baths to induce sweating and thus stimulate the general metabolism and blood production. The sweating seems to mobilize the deposits of iron in the organism. The metabolic findings, as he tabulates them for each of his cases, confirm the efficacy of this method of treating chlorosis.

Riforma Medica, Naples

August 9, XXV, No. 32, pp. 870-890

129 *Polymorphous Septicemic Fevers. (Sulle febbri e febbricole setticemiche polimorfe.) G. Rummo.

130 Relations between Diabetes and Islands of Langerhans. (Contributo anatomo-clinico allo studio del rapporto tra diabete mellito ed isole del Langerhans.) G. Rubinato.

131 *Lip Tuberculin Test. (La reazione locale della tubercolina saggiata su talune mucose.) G. Pollaci.

129. **Septicemic Fevers.**—This is the first of a series of twelve lectures delivered by Rummo on the various septicemic fevers, typhoid, paratyphoid, Malta fever, etc.

131. **Local Tuberculin Reaction on the Mucosa Inside the Lip.**—Pollaci has applied the local tuberculin test to the mucosa of the mouth and states that in 10 cases the reaction was pronounced even when the ocular reaction and reaction with the test on the mucosa of the urethra gave dubious findings. The test applied to 20 persons, healthy or with other diseases, gave constantly negative findings. The instillation of the tuberculin on the absorbing mucous surface in the mouth is very simple; a single drop of tuberculin is placed on one side of the frenulum as the lower lip is drawn out. The drop of tuberculin is allowed to remain undisturbed until completely absorbed, which is soon accomplished. The saliva does not interfere with the reaction, as normally the saliva does not accumulate at this point. The reaction ranges from slight congestion with a little fibrinous exudate to pronounced hyperemia, edema and minute ulceration, the symptoms all subsiding in from six to twenty-four hours. He is convinced that the substitution of the lip test will be found an improvement as it is free from the possible dangers of the ocular test, while it is more sensitive and reliable than other technics.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

PHILADELPHIA GENERAL HOSPITAL REPORTS, Volume VII, 1908. Edited by Herman B. Allyn, M.D. Cloth. Pp. 272. Philadelphia, 1909.

THE PRINCIPLES AND PRACTICE OF MEDICINE. By William Osler, M.D., Fellow of the Royal Society. Seventh Edition. Cloth. Pp. 1143. Price, $5.50. New York: D. Appleton and Company, 1909.

PARENTHOOD AND RACE CULTURE: An Outline of Eugenics. By Caleb Williams Saleeby, M.D., Ch.B., F.Z.S., Edin., Fellow of the Royal Society of Edinburgh. Cloth. Pp. 389. Price, $2.50, net. New York: Moffat Yard and Company, 1909.

PRACTICAL DIETETICS, with Special Reference to Diet in Diseases. By W. Gilman Thompson, M.D., Professor in the Cornell University Medical College. Fourth Edition. Cloth. Pp. 928, with illustrations. Price, $5. New York: D. Appleton and Company, 1909.

MEDICAL SOCIOLOGY: A Series of Observations Touching on the Sociology of Health and the Relations of Medicine to Society. By James Peter Warbasse, M.D., Surgeon to the German Hospital. Cloth. Pp. 355. Price, $2. New York: D. Appleton and Company, 1909.

TUBERCULOSIS. A Treatise by American Authors on Its Etiology, Pathology, Frequency, Semeiology, Diagnosis, Prognosis, Prevention and Treatment. Edited by Arnold C. Klebs, M.D. Cloth. Pp. 939, with 3 colored plates and 243 text illustrations. Price, $6. New York: D. Appleton and Company, 1909.

New Patents

Recently granted patents of interest to physicians:

928356. Capsule filler. P. H. Brown, Temple, Tex.
928752. Invalid's table. M. A. Hawley, Elk Grove, Cal.
928539. Lotion. G. Pucciarelli, Jersey City, N. J.
928884. Inhaler. V. E. Randall, Battle Creek, Mich.
40158. Design., massaging-implement case. A. H. Apfel, Chicago.
929383. Manufacture of a disinfectiant. A. Brick, Vienna, Austria-Hungary.
929281. Muscle-testing machine. A. A. Brodeur, Worcester, Mass.
929199. Inhaling and heating device. H. C. Dreisvogt, Santa Clara County, Cal.
929307. Utensil sterilizer. G. Holden, Merchantville, N. J.
929610. Commercial package of medicine. J. K. Lilly, Indianapolis.
929160. Catamenial bandage. I. L. Piamondon, Provemont, Mich.
929112-3. Vacuum massaging machine. C. B. Rider, Ocean City, N. J.
929254. Vaporizer. Z. G. Sholes, New York.
929524. Crutch. C. A. Weaver, Roswell, Ga.
929357. Combined bed-sheet and shelter tent. F. Whitney, Cimarron, N. M.
93023. Sterilizing fluids. C. B. Bartley, Pittsburg, Pa.
930031. Supporter. H. Bierhoff, New York.
929,833. Surgical instrument. R. L. Combs, Kerrville, Tex.
13901. Reissue, making camphor. C. Glaser, Baltimore.
929947. Electric needle spray bath brush. H. Hertzberg, New York.
929677. Automatic liquid-dispensing cabinet. E. Lavens, New York.
930203. Electrical instrument for pyrogravure and surgical purposes. L. Mandarelli, Paris, France.
929963. Disinfecting composition. A. W. Lyda, W. W. Cubbison, New Castle, Pa., and E. C. Robinson, Lowellville, Ohio.
930312. Vaginal syringe. F. A. Neveu, Denver.
930002. Window tent. W. E. Walsh, Morris, Ill.
930069. Combined water bag and syringe. W. G. Williams, Vinita, Okla.
930528-9. Ice-cream-containing cabinet and soda fountain. W. Butler, Indianapolis.
930841. Inhaler. H. P. Collins, East Orange, N. J.
930768. Obstetric appliance. F. E. Kelly, Kewanee, Ill.
930977. Vaporizer for disinfectants. G. Leininger, Chicago.
930086. Microtome. W. L. Patterson, Rochester, N. Y.
930619. Antiseptic card ticket, and package-delivering case. E. E. Russell, Los Angeles, Cal.
930439. Obstetric pad. M. H. Topping, Flat River, Mo.
930909. Making extracts. W. Wiegand, Mersesburg, Germany.
930910. Pasteurizing and cooling process. J. Willman, Derby, Conn.
931025. Pasteurizing holding tank. J. E. Amend, Milwaukee, Wis.
931113. Syringe. A. Bean, New Brunswick, N. J.
931378. Adjustable support and aseptic trays. C. F. Booth, Canandaigua, N. Y.
931030. Sprayer. D. O. Bowman, Rockford, Mich.
931034. X-ray apparatus. E. W. Caldwell, New York.
931612. Knife for surgical purposes. E. Huttmann, Hamburg, Germany.
931219. Douche pan protector. E. Reynolds, North Salem, N. Y.
931520. Emulsion and producing same. J. Stockhausen, Crefeld, Germany.
931240. Atomizer. R. F. Vanner and A. W. Brown, London, Eng.
931539. Bed or douche pan. B. C. Williams, Stamford, and A. C. Scott, Temple, Tex.

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